V.177.1

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Clinical Lecture

ON

THE ADVISABILITY AND THE METHOD OF OPERATING IN CASES OF ACUTE INFLAMMATION OF THE APPENDIX IN THE PERIOD FROM THE THIRD TO THE SIXTH DAY.

Delivered at the London Hospital,

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GENTLEMEN,—I have taken up this question to-day for two reasons. The first is that in my opinion it is the most important question in the treatment of acute inflammation of the appendix that still remains unsettled. Everyone who has seen a large number of cases agrees now that the sooner an appendix which may be on the verge of giving way or of becoming gangrenous is removed the better it is for the patient. Everyone, too, agrees that, in the later stages of the disease, when the acute attack is subsiding and the condition of the patient improving in every respect it is advisable and safe to wait. But everyone does not agree as to what should be done in the intermediate stage of an acute attack, when the patient is seen by the surgeon for the first time between the third and the sixth day after the onset of the acute symptoms, at a time when the septic inflammation has already spread widely into the general peritoneal cavity, and there is no indication whether it is going to stop or to spread more and more widely. These are the cases that furnish the highest rate of mortality after operation, a rate so high that some have advocated not operating upon them at all, and this is one reason why I wish to deal with them to-day. My other reason is that we have had of late an unprecedented series of acute cases, even for the London Hospital, and that a large proportion of them have reached this stage before they applied for admission.

Of course, the stage of which I am speaking is not marked off by any definite symptoms from that which precedes or that which follows it. In an attack which is fairly acute it extends, roughly speaking, from the end of the second day to the sixth or seventh, but it is influenced by many things. In children, for instance, it begins much earlier than it does in adults. It may begin in them within the first few hours. Then it is influenced, perhaps more than you would think, by the anatomical position of the appendix, whether, for example, it lies behind and to the outer side of the cæcum and colon, or hangs free in the peritoneal cavity; and, of course, it is influenced by the intensity of the inflammation and the virulence of the organisms that are causing it. Exact definition, therefore, is out of the question, but, roughly speaking, the third to the sixth day may be looked upon as its limits. A very large proportion of the acute cases that come to the hospital are seen by the surgeon for the first time after they have already entered upon this stage, and I am sorry to say not a few of those which occur in private.

No matter what the actual number of hours may be, the clinical symptoms are usually so definite that there is no difficulty in recognising this stage when it is reached. The attitude and the aspect are characteristic. The patient lies upon the back with the knees drawn up. The eyes are ringed with black circles. The cheeks are sunken. The lips are dry and the tongue, unless there has been recent vomiting, is dry and already brown. The respiration is entirely costal. The whole abdomen is distended, hard, rigid, and motionless. The muscles are too tense and the walls too sensitive for you to be able to distinguish anything by pressure; but on light percussion the note is distinctly flatter in the right iliac region than it is elsewhere. The pulse is quick and rapid, usually over 100 to the minute. Exceptionally, in two or three instances, I have found it quite slow and fairly soft. The temperature is raised two or three degrees. Rectal examination, which should never be neglected, reveals a certain degree of fulness and tenderness, especially upon the right side. In many instances the rectal temperature is one or even two degrees higher than it is in the mouth, so high that the difference can be appreciated even without a thermometer.

Such, gentlemen, leaving out all detail, is in brief the description of the condition of the patient. It means, of course, as is patent to you all, septic peritonitis spreading from the right iliac fossa and becoming generalised. The appendix, the source of all the trouble, is either gangrenous, or has given way, allowing the liquid contents of the bowel, with perhaps a fæcal concretion, to escape into the surrounding tissue. The actual position which it occupies, and the route along which the inflammation is extending, are not known, but occasionally there is an indication of some value. An exceptionally tender spot, for instance, in the lumbar region, just over the crest of the ilium, means that the cellular tissue behind the colon is involved, and that the inflammation is tracking upwards along the posterior abdominal wall. If there is great tenderness on rectal examination, especially if it is high up, or more marked upon the right side than the left; or if there is pain on emptying the bladder with, at the same time, increased frequency of micturition, it is probable that the appendix is lying on, or over, the brim of the pelvis. If, as in many of these cases, the attack is very acute and sudden, and the whole abdomen becomes involved almost at the same time, probably the appendix is lying on the inner side of the cæcum and has ruptured into the general peritoneal cavity; and this is rendered more likely if the left side of the abdomen rapidly becomes as tender and painful as the right. But at the best all of these are only probabilities. If there is an operation they indicate to some extent where and how drainage is to be carried out. They help but little in determining whether an operation should be performed or not, and that is the point to which I wish to direct your attention to-day.

It is admitted by everyone, no matter what views he holds as to the desirability of early operation or otherwise, that operation at this stage is a very grave undertaking. The mortality is far higher than when the appendix is removed at the beginning of an attack or after the acute symptoms have subsided. But I ask you to consider with me for a moment what are the chances of recovery that the patient has supposing no operation is performed. The inflammation so far has been advancing by leaps and bounds. It began in the appendix. It has spread through its walls into the tissues around. Now it has reached the general peritoneal cavity. Part of this is already involved, What is the likelihood of the inflammation stopping now? What is there to make it stop? That it does sometimes stop there is no doubt. Every now and then you meet with a case, very rarely a first attack, in which owing to the fortunate presence of adhesions, or for some other reason which we do not know and cannot be aware of beforehand, the invasion is checked before it has spread too far, and the effusion becomes circumscribed. But, given the actual patient before you, you cannot calculate on probabilities of this kind, or treat him by percentages. If you are going to leave him without operating, you must make sure beyond the possibility of doubt that the invasion has been checked; and the only thing that enables you to do this is definite proof that all the important symptoms are subsiding. The pulse-rate must be falling; the distension growing less; the pain and tenderness abating; the temperature dropping; the tongue growing moist; and, perhaps more than all, the general aspect of the patient improving. You must not place any reliance on what you are told by the patient. In what is sometimes called, because of its deceptive character, the quiet interval, it is not uncommon for the patient and even for the patient's friends to imagine that there is some improvement, when all the time the apparent abatement of the symptoms is merely the result of the poisoning of the patient's nervous system blunting all his senses. You must be on your guard against this, and you must not pay any attention to what is told you in the face of the evidence of one single objective sign. Nothing short of a general all-round improvement justifies delay. It is not enough that the symptoms are remaining stationary or that most of them are showing signs of improvement. They must all be improving. If there is one single one about which you are in doubt, one single one that is not definitely better than it was a few hours before, the attack is not subsiding; the danger is increasing and you are not justified in waiting.

I have the less hesitation in speaking to you so positively on this point because I am convinced that the rate of mortality after operations performed during this stage is far higher than it need be. The reason is simply that too much is attempted. The object in operating is not to get rid of the poison by a process of mechanical removal. That is impossible, if you think for a moment of what the peritoneum is, and nothing but harm can result from trying. The object is to place the injured tissues in such a position that they may be able of themselves to take all the steps that are required for their protection as rapidly and as easily as they can. This is all that can be done. Attempting to do more is only likely to inflict a greater injury. Picture to yourselves for a moment what is happening. A virulent poison, set free in one special corner of the peritoneal cavity, is overcoming all opposition and spreading wider and wider along the line of least resistance. It cannot of itself escape through the abdominal wall. There is no chance of its doing this for many days to come. It cannot escape by the bowel. Its easiest route is either through the planes of cellular tissue or in the interstices between the coils of bowel, and here it can spread, and does spread, with the greatest ease. Meanwhile the surrounding structures are making every effort to check its further progress. The walls of the abdomen and the intestines remain absolutely quiet so as not to distribute the poisonous fluid more widely by their movements. The amount of blood flowing through the part is enormously increased. The peritoneum keeps on pouring out lymph to act as a barrier and check the advances of the micro-organisms. Vast changes, of which we do not yet know the full significance, are taking place in the blood and lymph. Unless the case is one of those fulminating ones in which the nervous system is overpowered from the first by the toxæmia, so that it can do no more, everything that is possible is being done by the blood and the tissues to check the spreading of the poison, to stop its absorption, and to get rid of that which has already entered into the circulation.

The problem is how to help them in this. Saline fluid may be injected into the subcutaneous tissue or into the rectum. It dilutes the poison already absorbed and helps the kidneys to excrete it, and there is reason to believe that in sufficient quantity it may be able to reverse the pressure and check further absorption from the surface of the peritoneum. Nucleinic acid may be injected subcutaneously. Adrenalin may be given to raise the blood pressure. The bowels may be cleared out as soon as possible. If the nature of the infecting organism is known the corresponding serum may be injected. Even if it is not known I cannot help thinking that I have seen distinct improvement follow the somewhat haphazard administration of antistreptococcic serum. But none of these things will cure the patient so long as the poison is allowed to keep on spreading from its primary focus. Unless this is stopped, and stopped effectually, nothing else is of any avail.

The first thing to do is to lay this focus open from one end to the other so that there may be the freest possible exit through which the poison can escape. Until this is done nothing else is of any use. The spot from which the poison is spreading has to be laid bare in its whole length and breadth, so that it shall be easier for the septic fluid to escape outwards than to spread further inwards into the peritoneal cavity. The direction of the pressure has to be reversed. A free incision must be made through the abdominal wall. If there is one spot more tense or more tender than the rest the incision should run through that. Valuable information can sometimes be obtained about this, when the patient is being placed under anæsthesia, by watching for the spot from which the tenderness and rigidity are the last to disappear. If there is no localising sign of any kind the incision should run parallel to the crest of the ilium through a point one-third of the distance of the anterior superior spine from the umbilicus. But the essential feature is that the incision should be long and free through everything until the fluid pours out. There must be no muscle splitting. The possibility of hernia afterwards is a mere detail in cases such as these. All the structures of the abdominal wall must be divided evenly. Then the finger should be very gently passed inwards in three directions successively: on the outer side of the colon, back to the abdominal wall; in front of the colon, to its inner side; and down into the pelvis. If there is much fluid to escape drains should be inserted in each of these directions. I prefer a tube for the outer side of the colon, passed right through the abdomen over the crest of the ilium, and gauze drains for the other two. But if the patient is a woman and the pelvis is involved, a tube passed through the vagina into Douglas's pouch answers better.

That is all. The intestines should not be allowed to escape. No search should be made for the appendix. If it presents in the wound, or you can get down to it at once, it should, of course, be removed. This is always a source of satisfaction, as it shows the source of all the mischief has been reached; but nothing but harm results from a prolonged search for the appendix at this stage. It can be dealt with later, when the patient has quite recovered. No attempt should be made to cleanse or wash out the peritoneal cavity. Everything—exposure to the air, even contact with warm normal salt solution—acts injuriously upon the peritoneal lining when it is healthy, and is simply destruction to it when it is inflamed. There is no possibility of getting rid of the poison by any system of washing. The attempt only distributes it over a wider area, carries the infection into regions which had hitherto escaped, and does infinite harm. You have no need to feel the pulse. You have only to look at the patient's face while it is being done to appreciate the effect that the so-called cleansing of the peritoneal cavity has upon the chance of recovery. And no attempt must be made to secure early union of the wound in the abdominal wall. The opening should be lightly packed with gauze and silkworm-gut sutures tied across it so as to prevent any of the bowel prolapsing if vomiting should set in. Later, when the necessity for such free drainage is passed and the gauze is removed, the same sutures may be used to draw the margins of the wound more closely together.

One great merit of operating in this way is that the whole proceeding, if everything is got ready beforehand, need not take more than a few minutes. Then the patient should be placed in bed, lying upon his right side, with the shoulders raised and the knees drawn up, and saline infusion, if it has not already been started, begun at once. The length of time the tubes should be left depends upon the amount of discharge that comes away; but gauze drains are of no use as drains after the first 24 hours. They should be removed at the end of this time, and a mere wisp of gauze introduced into the wound, to prevent its walls collapsing together and blocking the exit. It is quite true that in cases treated in this way secondary abscesses may form a few days later from foci of infection that have been left among the loops of intestine; but these are merely local collections of pus, and there is no fear then of general peritonitis setting in; and it is quite true that later the appendix may have to be removed and another operation performed; but remote consequences of this kind do not merit consideration when septic peritonitis has already broken out and is rapidly becoming general.

THE ELECTRICAL REACTIONS OF BACTERIA APPLIED TO THE DETECTION OF TUBERCLE BACILLI IN URINE BY MEANS OF A CURRENT.[1]

BY CHARLES RUSS, M.B. LOND.

PART I.

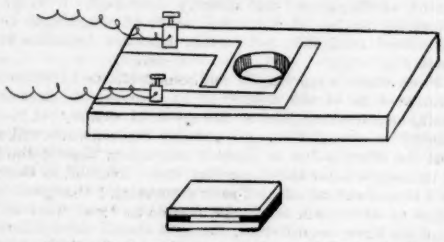
Cohn and Mendelsohn, amongst other experimenters, submitted pathogenic bacteria to the action of the electric current to determine its germicidal value. Currents of various strengths were passed through cultures and for different periods; when failure to grow in subculture was observed the lethal dose had been found, though it was deemed difficult to decide whether the organisms were killed by the current as such or by exposure to noxious gases—e.g., chlorine liberated from the electrified substances. The object of my experiments is not lethal; the considerations which led to their performance were as follows. If pathogenic bacteria are susceptible to electric currents traversing fluids in which they are present, and such susceptibility be shown by movement to one electrode, then the electric

[1] A paper embodying the main features of this work was read before the Royal Society on June 24th, 1909.

current might be used for their direction to that electrode placed in a pathological fluid for this purpose, the electrode withdrawn, and the organisms identified. Amongst fluids which are often suspected to contain tubercle bacilli are urine, pleural effusion, cerebro-spinal fluid, or milk. The method might also be applied to the detection of typhoid bacilli in water.

To this end I tested certain common pathogenic species in a saline emulsion enclosed in a small glass cell (described later), through which a current was passed, while observation of the organisms was made, using a microscope with 1-6th inch objective. It was soon evident that the bacteria were moving towards one pole, a considerable aggregation of organisms at that pole becoming visible; upon reversing the current they moved in the opposite direction. These first experiments were carried out with the glass cell already referred to, which consisted of the following parts. Fig. 1: A cover-

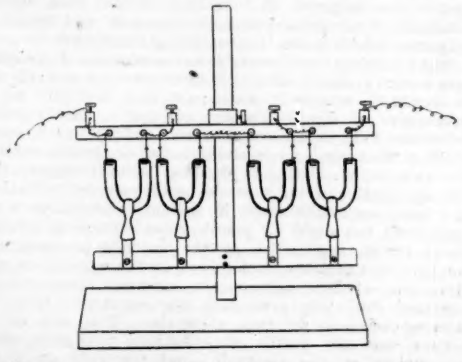
FIG. 1.



square was supplied with two platinum foil (or lead) terminals separated about six millimetres from each other; a drop of weak bacterial emulsion made electrical connexion between the two terminals and was prevented from drying by another cover-square resting on the top of the first one, the edges of which were greased. The "glass cell" was then mounted on the stage of a microscope and a current of about one milliampère was sent through it. By observing the time required for a watched bacillus to traverse an apparent inch, and dividing by the magnification of the instrument used, some idea of their speed under these conditions was gained.

The question arose as to whether this motion might be an effect due to some variation of the surface tension of the fluid under the conditions of the experiment. I therefore decided to make further tests by another method in which this possibility was excluded. The apparatus used was a source of current—viz., Leclanché cells, a galvanometer, a reverser, a voltmeter, and a simple form of contact maker; having these in circuit the end wires were led to a stand (Fig. 2) furnished with contact screws, suspended from

FIG. 2.



which were platinum foil terminals. In a clamp below the terminals a glass U-tube was fixed, the stand having an adjustable fastening permitting the foil terminals to be lowered into the upper ends of the U-tube. An emulsion of the bacillus coli communis was made by pouring normal saline upon a fresh agar culture of the organism, sweeping the growth by a platinum loop into the saline, and pouring it into a test-tube which was sealed by the blow-pipe; by thorough agitation an even emulsion was then made of the bacilli. Some of this emulsion was next poured in to nearly fill the U-tube, the platinum terminals were lowered into the limbs of the tube, so as to dip a quarter of an inch under the emulsion, and a small current was passed. By observations made at hourly intervals, organisms were seen accumulating under one of the terminals, until after several hours there was a dense column of bacteria under that terminal, visible to the naked eye as a white cloud, the fluid in the opposite limb and bend of the tube becoming apparently quite clear. Upon reversing the current similar accumulation under the opposite terminal was noticed, with similar clearance away from the terminal at which, in the first instance, the accumulation had occurred; the process was then repeated. It was also noticed that the aggregation became less complete with each reversal of the current. In several electrolytes of very high resistance a spurious effect was noticed. Soon after the current had been established a clearance of the bacteria from one electrode was noticed without a corresponding accumulation at the other. After stopping the current it was observed that the bacteria soon became uniformly distributed throughout the fluid in the U-tube.

The effect of a similar current was next observed with bacterial emulsions in different salts (electrolytes), viz.:—NaCl, Na_2HPO_4, $NaNO_3$, Na_2SO_4. In this case equal amounts of the emulsion were poured into equal volumes of these chemicals, and by arranging four U-tubes in series their electrification was simultaneous. (I used 4 per cent. solutions of these electrolytes when in series, to enable sufficient current to pass; if the solutions were very weak—e.g., ½ per cent. or less—gravitation of the bacteria occurred before the electric effect was evident.) In such a series of observations I have found that in some electrolytes no visible effect occurs, while in others the accumulation is evident; also that the accumulation varies in degree with different species in the same electrolyte, and for the same species in different electrolytes. Some of these observations are set forth in Table I., and are comparative rather than absolute. If, for example, an organism is indicated by aggregation in NaCl and *nil* in Na_2SO_4, it means that by the time the effect was evident and complete in NaCl no change was apparent in Na_2SO_4. It will be noticed from Table I. that the basic

TABLE I.

—	Na_2	SO_4	Na	NO_3	Na_2	HPO_4	Na	Cl_2
Bacillus coli communis.		+		+		+		+
Bacillus typhosus.		+		+		+		+
Staphylococcus aureus.		Feeble +		Feeble +		Not tested.		+
Tubercle bacillus.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.		Feeble +
Hoffmann's bacillus.	Nil.	Nil.	Nil.	Nil.		+		+
Bacillus pyocyaneus.		+		+		+		+
Micrococcus melitensis.		+		+		+ +		+
Streptococcus.	Nil.	Nil.		Not tested.		+		+
Gaertner's bacillus.		+		+		+		+

The acid radicle column = anode. The base column = kathode. + indicates aggregation, and has no reference to electric sign nomenclature. $\overset{+}{+}$ = marked aggregation.

TABLE II.

—	Zn	SO_4	K_2	SO_4	Mg	SO_4	$(NH_4)_2$	SO_4
Bacillus coli communis.	Nil.	Nil.		+	Nil.	Nil.	Nil.	Nil.
Bacillus typhosus.	Nil.	Nil.		+	Nil.	Nil.	Nil.	Nil.
Staphylococcus aureus.	Nil.	Nil.		+	? +		Feeble +	
Tubercle bacillus.	Nil.	Nil.	Nil.	Nil.	? +		+	
Bacillus pyocyaneus.	Nil.	Nil.		+	Nil.	Nil.	Nil.	Nil.
Gaertner's bacillus.	Nil.	Nil.		+	Nil.	Nil.		Feeble +
Micrococcus melitensis.	Feeble +			+	Nil.	Nil.	+	

The streptococcus in Table I. died before Table II. was begun. The ? was necessitated by oxide formations referred to under choice of electrolytes.

element (sodium) is constant, while the acid radicle varies. The same species were similarly treated with electrolytes in which the acid radicle (SO_4) was constant and the base varied. The results are set out in Table II. In both tables the thin line indicates the point of cleavage of the dissolved salt under the influence of the current (primary electrolysis), the metallic radicle proceeding to the negative and the acid radicle to the positive pole respectively.

Upon the completion of the tests set forth in these tables my further work took another course, but I hope to confirm the results by repetition at an early opportunity. From the experiments indicated I concluded that these bacteria suspended in certain fluids and under the influence of a suitable electric current migrate to one of the electrodes, that they proceed on reversal of the current to the same electrode (in the opposite limb of the U-tube), and that the effecting force is sufficient to overcome gravitation; also that certain species migrate to the positive electrode in some fluids and to the negative in others. I also found the movement to occur in boiled cultures, which shows it to be independent of the bacterial vitality. In view of the object of these experiments, it may here be remarked that no consideration was paid with regard to the killing of the organisms used, either by saturation with germicides or by the currents.

Before proceeding further it will be convenient to discuss the nature of the movement just described. Amongst suggestions that present themselves to account for it are the following.

1. It is known that various forms of organic life exhibit electrical phenomena, and in the case of the electric eel the electric charges are generated in the skin. I recall, also, Dr. A. D. W. Waller's interesting demonstration of galvanic susceptibility of tadpoles. Going higher in the scale, the capillary electrometer reveals a minute change of electrical state of the human heart with each phase of systole and diastole. It must be admitted as possible that a living bacillus may also possess or generate as the result of its vital processes, minute electric charges, and if such exist it follows that these charges would be attracted to the electric pole of the opposite sign, migration of the charged object being a necessary sequence of the process.

Reference may be made here to the migration of suspended particles and of colloids under the influence of an electric current, a short account of which may be found in Le Blanc's "Text-book of Electro-Chemistry," p. 157. But against such an explanation is the fact that solutions have been found in which no movement occurs; yet through these solutions the same quantity of electricity was passing, and the facility for movement was presumably as good as in the other solutions. It is also unlikely, if bacteria possess or generate the charges postulated, that they remain in a charged condition when killed by boiling.

2. By the ionic theory in the case of a simple salt—e.g., NaCl dissolved in distilled water—the molecules are considered in the main to be united as Na and Cl atoms. During the passage of a current through such a fluid very large numbers of the molecules of the salt break up into separate atoms of Na and Cl, each with an electric charge. These electrically charged atoms or ions proceed in numerous streams in opposite directions to the negative and positive poles respectively, where they are known to be liberated as free elements, chlorine gas and sodium, which latter element at least re-dissolves in the fluid and leads to secondary electrolytic effects (which are not important for the moment). It is therefore possible that these swarms of ions are causing the bacterial aggregation under discussion, and that their possible action may be considered from two main standpoints —(*a*) mechanical and (*b*) chemical.

(*a*) Since there are innumerably more ions than bacteria, the latter are, in a sense, in the way of the ions which may push the obstructing bacteria in front of them. (Taking the length of an average bacillus at five micro-millimetres, an ion is presumed to be about 1-5000th of that size.) During the passage of the current there are two streams of ions passing in opposite directions, and if one were more efficient than the other, one would expect it to be the element whose atomic (weight) groups were heavier than the other, or whose velocity were greater (the heavy ions travel faster than lighter ones); for example, when $(NH_4)_2SO_4$ is the electrolyte, the group SO_4 which is proceeding to the anode has an atomic weight value of 96, against a value of 36 for the groups $(NH_4)_2$ going the other way; the former group should carry the obstruction with it rather than the latter; but there are two cases shown in the table of an organism going to the electrode at which $(NH_4)_2$ arrives; further, there are several instances in which no effect was obtained in solutions whose two groups are by no means of equal weight value.

(*b*) Ions, however, if considered in their chemical attributes as free atoms, and if free during electrolysis to exert their chemical affinities, may be doing so in the effects under review; taking the case of the bacillus coli communis suspended in sodium chloride, the migration of the organism to the anode may be due to affinity of the bacillus for chlorine. If this be the case, since the chlorine atoms are impelled to the anode, it would account for the conveyance of the bacillus to that electrode. While considering this aspect of the causation the following considerations may be added:—

The speed of the bacteria should not exceed that of the ions. The speed of ions is known for certain electrical conditions, and by observations of the bacterial speed, by means of the glass cell already described, I found the velocities to be of the same order of magnitude as the calculated velocities, but further tests are desirable in this particular.

From these experiments and observations I realise that inferences as to the nature of the movement observed are useful as a working idea of the mode of action, but must be classed as speculative, and possibly further work will show that the effect is due to another cause than chemical affinity of the bacteria for these moving ions. Should it, however, be a true chemical effect it seems reasonable to expect that a series of chemicals might be found in which various, and what we know as different, bacteria should show differences of behaviour which would contribute towards the identity of members of certain bacterial groups whose differentiation at present depends largely upon their chemical actions.

PART II.

To detect the bacteria in a pathological fluid by means of a current it is necessary to cause their migration to one electrode while a current traverses the fluid, then to withdraw that electrode and identify the organisms. Two essentials are requisite, viz.: (1) the addition to the fluid of an electrolyte in which the organism is known to migrate; and (2) to arrange the electrode at which they will eventually arrive in the form of a bacterial trap.

The fluid which I selected for this application was urine containing tubercle bacilli, since the recognition of the bacilli could be made by stained films alone. The first step, therefore, was to find an electrolyte in which tubercle bacilli showed a well-marked aggregation at one electrode. This proved a laborious task, for I found it indifferent to the majority of substances in which it was electrolysed; the procedure was substantially the same as in the U-tube experiments in Part I. Tubercle bacilli from glycerine agar cultures were ground in a mortar and emulsified in water and a few drops of the emulsion shaken with aqueous solutions of numerous chemical substances and tested for migration effects in the U-tubes during electrolysis.

The conditions found desirable in the selection of an electrolyte were: (1) that it should conduct electricity well; (2) that it should be soluble in water; (3) that it should not be destructive of organic matter; (4) that it should form a colourless fluid in aqueous solution; and (3) that it should yield on electrolysis no insoluble metal or metallic oxide at the kathode, simulating or masking bacterial aggregation. The aggregation of the tubercle bacilli recorded in Table I. is a feeble one to the anode in sodium chloride, but it was considered too slight for practical use. There is noted in Table II. an aggregation at the kathode in ammonium sulphate, but that is soon followed by the appearance of a clear zone of fluid between the bacterial cloud and the platinum foil, this preventing the organisms from remaining adjacent to that electrode. This led me to believe that the bacilli if caused to approach would not remain at the electrode, and therefore could not be withdrawn for identification; accordingly, I proceeded to try other substances, of which the following is a list:—Inorganic: Potassium iodide, iodic acid, sodium sulphite, sodium carbonate, sodium bicarbonate, sodium nitrite, potassium chlorate, microcosmic salt, ammonium magnesium sulphate, ammonium magnesium phosphate, potassium cyanide, and copper sulphate. Organic: sodium

tartarate, sodium acetate, sodium citrate, maltose, glucose, lactose, cane sugar, ethyl alcohol, methyl alcohol, acetaldehyde, glycerin, formalin, formic acid, amido-acetic-acid, urea, uric acid, sodium urate, oxalic acid, urea nitrate, lactic acid, ethylamine, acetone, chloralhydrate, phenylene-di-amine, sulphanilic acid, picric acid, carbol fuchsin, chloroform, carbolic acid, acetic acid, and acetamide.

A fair accumulation at the anode was observed with iodide of potash, but discerned with difficulty on account of the liberated iodine; by the addition of this substance to tuberculous urine I recovered numerous tubercle bacilli at the anode, though they had to be liberated from a solid mass of iodine formed in the trap at the end of the process. Various other substances were added to iodide of potash to redissolve this iodine, but they all interfered with the essential bacterial movement. I therefore abandoned potassium iodide.

In the experiments recorded in Tables I. and II. the bacillus was observed to react in the presence of chlorine and nitrogen and hydrogen combinations; the selection of new substances was therefore guided by those considerations—e.g., chlorine is present in chloroform and chloral hydrate, ammonia in ammonium and uric acid compounds, and nitrogen and hydrogen combinations in the amides and amines and free acids. In many cases the substances used are poor conductors of electricity, so that only one U-tube could be electrolysed at a time with the battery power available, reaction, if any, being complete in 12 hours, another twelve being required for reversal. Eventually, with ethylamine a fair accumulation was noticed at the kathode. The electrical reaction of tubercle bacilli in normal urine alone was found to be slightly anodic.

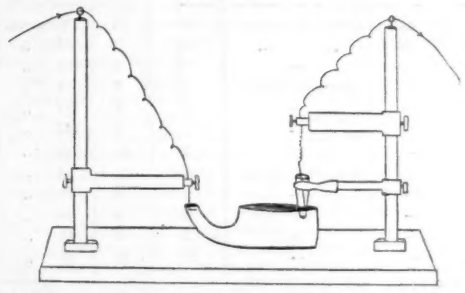
It was next necessary to find whether the addition of urine to ethylamine interfered with the observed kathodic aggregation of tubercle bacilli; the effect, however, remained unaltered. (In testing aggregations in urine I had noticed the formation of a white flocculent substance at the kathode, which is insoluble in the tube contents, but soluble in mineral and organic acids. As this substance is easily mistaken for a bacterial cloud at the kathode, the solubility in acid is a ready test for its presence; it may also be recognised by its rapid appearance and bulkiness of the cloud; in these particulars contrasting with the true bacterial massing at the electrode; lactic acid was therefore always added in urine electrolyses to prevent its formation.)

In a mixture of ethylamine, lactic acid, and urine the kathodic aggregation was found to be much stronger than in ethylamine alone, while separate tests showed no movement in lactic acid alone. Upon the completion of the aggregation stained films were prepared from the cloudy fluid at the kathode and from the apparently clear fluid at the anode; the kathode film swarmed with tubercle bacilli, and none were seen in the anode film. However, another difficulty was encountered. Although a very active electrolyte had been found in this mixture, the action had gone too far and spoilt the staining power of the tubercle bacilli (from a fresh culture); they retained the carbol fuchsin feebly and appeared very refractile. Since the recognition of tubercle bacilli from tuberculous urine was to be by stained films, their affinity for the stain must not be impaired, and means had to be found to overcome this difficulty. Two courses were open—viz., either to seek still further for an electrolyte in which the tubercle bacilli should give a good reaction, while the staining powers remained good, or to find an additional substance to be added to the urine, lactic acid, and ethylamine mixture which should "protect" the bacilli so that they should stain well at the end of the process. I chose the latter course.

In doing the tests with the 43 substances I had noticed during electrolysis of iodic acid a slight liberation of iodine at the kathode (in iodide of potash iodine is liberated at the anode), and I therefore thought that if iodic acid were added to the mixture either iodine or hydriodic acid would be liberated at the kathode simultaneously with the strongly alkaline products of ethylamine and lactic acid which form there, and that this iodine or hydriodic acid would neutralise or combine with these products which interfere with the staining power. I therefore made further U-tube tests of tubercle bacilli aggregating in ethylamine, lactic acid, and urine to which chloric acid, iodic acid, and bromic acid were also added, each in separate U-tubes; bromic acid appeared to give the best result, the bacilli taking the carbol fuchsin stain well at the end of many hours' electrolysis. The suitable electrolyte being therefore found to consist of urine, ethylamine, lactic acid, and bromic acid, further U-tube observations were then made as to the proportions of these substances which gave the most marked accumulation at the kathode. I concluded that E (1) L (4) B (2) U 1 or two parts was the most satisfactory arrangement.

Having therefore secured a tuberculous urine in which the bacilli had been found by the centrifuge, the U-tube stand was replaced by a glass vessel (Fig. 3) filled with the

FIG. 3.



(B) (L) (U) (E) mixture. In the narrow limb of the vessel a platinum foil strip was submerged and served for transmission of the current through the main column of fluid. The gases liberated at this foil escaped by the narrow limb and were thus prevented from traversing the bulk of the fluid. In the other limb a glass tube drawn out to a coarse point was held also submerged slightly and traversed by a platinum wire which just touched the fluid surface. The lower end of the glass tube formed a bacterial "trap." By arranging the circuit so that the wire was the kathode, I expected that on passing a current the tubercle bacilli present in the urine and under the influence of the ethylamine and lactic acid would seek the kathode (as in the U-tube experiments), and would eventually enter the fluid enveloped by the submerged end of the tube and remain adjacent to the platinum wire. Having given them time to arrive, the wire was carefully lifted out, the glass tube was slightly lowered in the vessel, the tube top was closed by the wet or greased finger and lifted away to a slide previously smeared with fixative. The fluid in the "trap" was from two to three minims in volume and strongly alkaline at the end of the process, the bulk of the mixture remaining acid. This alkaline fluid was acidified with a 10 per cent. solution of acetic acid, placed on the slide, the film dried by heat and stained by the ordinary Z.-N. carbol fuchsin method. Tubercle bacilli were found in small numbers in the early attempts, and to confirm the experiment I attempted to detect the bacilli by this method in 12 consecutive cases, using always part of the remainder of a specimen of urine in which tubercle bacilli had been found by the centrifuge.

During these 12 experiments variations in the period of passing the current and in its strength were made. The results are shown in the Table III. and may be thus summarised: (1) that tubercle bacilli were in the "trap" upon each occasion at the termination of the process; (2) they were present in larger numbers than they would have been in from two to three minims of the original urine; (3) that they were present even when the urine had been greatly diluted; and (4) the evidence is not complete that all the bacilli in the urine used were conveyed into the "trap."

The appearance of the bacilli in the films made from the trap is similar to those from a centrifugalised urine, although the pus cells (which also enter the trap) undergo dissolution with the increasing alkalinity of the trap contents. If the electrolysis be carried on for from 24 to 36 hours the bacilli fail to take the stain efficiently, but such exposure is unnecessary.

Comparative tests between the centrifuge and the electric current were then undertaken as follows. An emulsion of tubercle bacilli was prepared by Dr. Cavendish Fletcher by the method of vaccine making and standardised to contain 1000 tubercle bacilli per cubic centimetre; he added half a cubic centimetre of this fluid (i.e., 500 tubercle bacilli) to

TABLE III.—*Detection of Tubercle Bacillus in Tuberculous Urines by the Centrifuge and Electric Current.*

Case.	Centrifuge.		Electric current.		
	Volume of urine used, in cubic centimetres.	Description of tubercle bacillus seen in films.	Volume used, in cubic centimetres.	Number of times diluted.	Number of tubercle bacilli seen in film but which is not a total count.
1	10	Moderate numbers.	10	15	59 bacilli.
2	30	" "	10	5	38 "
3	—	—	7	6	205 "
4	20	Fairly numerous.	6	7	84 "
5	—	—	6	7	149 "
6	—	—	6	7	103 "
7	—	—	2	21	15 "
8	10	Fairly numerous.	5	9	22 "
9	—	—	5	9	68 "
10	—	—	5	9	35 "
11	—	—	5	9	40 "
12	—	—	10	10	65 "

The volume used by centrifuge = 10 cubic centimetres once, twice, or thrice repeated -i.e., the capacity of the tube = 10 cubic centimetres. The film forms a permanent record of the experiment in each case.

100 cubic centimetres of normal urine and thoroughly mixed the fluid and bacilli and attempted to recover the organisms by the centrifuge. I added a similar quantity of the same emulsion (500 tubercle bacilli) to 45 cubic centimetres of urine and made up the volume to 100 cubic centimetres with the lactic acid, ethylamine, and bromic acid mixture, thoroughly mixed the ingredients, and passed a current for an appropriate period. The result and repeat experiments are set forth in Table IV. It was thought desirable to obtain an independent examination in the repeat experiments. A sample of the test fluid was therefore sent to Dr. X. at a London hospital to be examined for tubercle bacilli.

TABLE IV.

Experiment No.	Centrifuge. 100 c.c. Normal urine containing—	Pathologist.	No. of T.B. found.	Electric current. 100 c.c. of normal urine + electrolyte containing—	No. of T.B. found.
1	500 T.B.	Dr. Fletcher.	Nil.	500 T.B.	128
2	500 T.B.	Dr. Fletcher.	Nil.	No competition.*	
	500 T.B.	Dr. X.	Nil.		
3	100 T.B.	Dr. Fletcher.	Nil.	100 T.B.	12
	100 T.B.	Dr. X.	Nil.		
4	500 T.B.	Dr. Fletcher.	Nil.	500 T.B.	64
	500 T.B.	Dr. X.	Nil.		

* My sample was spoilt while starting Experiment 2.

T.B. = tubercle bacilli. In Experiments 2, 3, and 4 the estimated number of tubercle bacilli was added to normal urine and divided into three equal parts, which were then diluted as indicated. A fresh emulsion of tubercle bacilli was enumerated for Experiments 3 and 4, since the bacilli disintegrate in time. (Tuberculous urine always contains pus cells, which are much more numerous than the tubercle bacilli and carry the latter with them during sedimentation or centrifugalisation. In these test fluids there was no pus.)

During the course of the work described in Part I., null experiments were occasionally made by way of control as follows. The electric circuit was arranged as usual, and an emulsion of bacilli, known to aggregate when electrolysed, filled the U-tubes, but no current was turned on. In these null experiments no aggregation was observed and the organisms slowly gravitated into the bend of the U-tube.

In the experiments in Part II., the strength of ethylamine and bromic acid used was 5 per cent., and of lactic and acetic acids 10 per cent., all in aqueous solutions. The average voltage of the constant current used = 15 volts, and the average ampèrage = from two to three milliampères. The time of electrolysis in the urine experiments varied from eight to 18 hours; the arrangement (of trap) described and illustrated in Fig. 3 will work automatically for two days.

I acknowledge the valuable assistance of Mr. S. Russ, demonstrator of physics, Manchester University, with the electrical technique and measurements. I am also indebted to Dr. G. L. Eastes for the use of his laboratory during the earlier part of the work and to Mr. J. G. Pardoe for a supply of tuberculous urine from St. Peter's Hospital.

In conclusion, the results of the present preliminary investigation may be summarised as follows. Certain bacteria under the influence of a suitable current aggregate at one or other electrode. The aggregation varies with the nature of the electrolyte, and is probably due to an affinity between the products of electrolysis and the bacteria. It occurs with killed as well as with living bacteria. The aggregation by electrical currents affords a means of collection and examination, and was found of greater detective capacity in certain of the experiments undertaken than was the centrifuge. The differences in behaviour of various bacteria are such as to suggest the possibility of utilising the method for purposes of specific discrimination, but in this particular the data hitherto obtained are insufficient to warrant definite statements.

Since completing these experiments I have noted the following, amongst a by no means extensive amount of published work in electro-bacteriology. Abbot and Life (*Journal of American Physiology*, 1908, p. 202) tested microscopic quantities of motile bacteria suspended in distilled water, and observed to-and-fro movements in a glass trough. They used excessively minute currents, and concluded that variations in the observed reactions of the organisms depended upon their cultivation in acid or alkaline media. They found no effects with dead or non-motile (living) species; they avoided currents large enough to cause electrolysis, and concluded that their results were galvanotropic. Apostoli and Laquerriere (*Comptes Rendus de l'Académie des Sciences*, 1901, vol. cxxxiii., p. 186) concluded that constant currents are able to sterilise cultures or attenuate their virulence. They studied especially the conditions necessary to produce such effects. S. Kruger (*Zeitschrift für Klinische Medicin*, 1893) contributes an account of the lethal effects of electricity applied to bacteria.

Other references to which I have not yet had access are the following:—H. Friedenthal: Ueber den Einfluss des Elektrischen Stromes auf Bakterien, Centralblatt für Bakteriologie, 1 Abtheilung, Jena, 1896, vol. xix., pp. 319-324. Jennings: Papers on Reactions to Electricity in Unicellular Organisms, Journal of Comparative Neurology and Psychology, Granville, 1905, 598, 534. S. Bang: Wirkungen des Elektrischen Bogenlichtes auf Tuberkelbazillen in Rein Kultur, mitt Findens, Lysinst, Kopenhagen, Leipzig, N. 3, 1903, 97-112.

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THE OPSONIC TEST.

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SINCE the first announcement by Sir Almroth Wright of his methods for the estimation of phagocytosis and vaccine treatment there has been much controversy both here and on the Continent as to the value of the opsonic test in diagnosis and treatment of bacterial diseases. Notwithstanding the severe criticism to which the test was subjected last year at the Berlin Pathological Society, it appears to me that the main contentions of Sir Almroth Wright have been left untouched, even if the scope of the opsonic test be for various reasons less wide than was at first believed. The object of the present paper is to consider the various criticisms levelled at the test, in the light of a three years' experience of it in relation to tuberculosis.

Metchnikoff's classical experiments have shown conclusively that phagocytosis is one of the means for removing and counteracting pathogenic bacteria in the body. In some cases it is quite evident that intracellular digestion of bacteria takes place, although there are clearly some kinds of bacteria against which phagocytosis is an insufficient protection. In some cases extracellular toxins are produced—e.g., in diphtheria and in tetanus—which alone are capable of reducing the defences of the body, and which would be but little affected by phagocytosis. In other cases

—e.g., the tubercle bacillus—the invading organism is so protected that it cannot be digested by the unaided phagocyte. Wright's experiments have clearly shown that as regards the tubercle bacillus and staphylococcus little or no phagocytosis happens unless the bacteria are first acted on by the unorganised constituents of the blood or lymph. Whether (as Wright contends) this action is a preliminary digestive process, or (as Baumgarten believes) a process leading to the excretion or extrusion of a chemiotactic substance which attracts the phagocytes, obviously the unorganised substances in the fluids of the body do play their part in promoting phagocytosis, and that part is an action exerted upon the bacilli. Whence these unorganised substances (which Wright calls opsonins) are derived is still an unsettled question. Allen[1] states that the amount of opsonin present in the blood bears no definite relation to leucocytosis and that it is not affected by disease of the blood-forming organs, but he does not say on what evidence this assertion is based. On the other hand, he quotes observations showing that the opsonins are derived in at least some instances from the muscle plasma. The experiments of Yorke and Smith[2] show that the specific opsonins are probably derived from a non-specific pre-opsonin. It follows from this that partial exhaustion of the pre-opsonin by the attack of one organism will leave less pre-opsonin available to counteract another. Some of my own cases appear to show that non-specific causes may also reduce the opsonic power of the blood against tubercle. Baumgarten in the Berlin debate declared his opinion that phagocytes only attack dead bacilli—meaning presumably tubercle bacilli—and that their function is limited to removal of "the corpses of the slain in battle." He asserted that the opsonins only play a subsidiary part in the fight against disease and are not the most important antibodies. He based his assertion on experiments appearing to show that there was little or no difference in lethal power between cultures treated with phagocytes, or blood serum, or both, and similar untreated cultures, but surely the relative proportions of the two sets of combatants must affect the result. In a culture there are far more virulent bacilli in a limited space than are found in an average case of disease; and it may well be that where the bacilli are in a large majority a little phagocytosis makes no appreciable difference to the lethal power. In a test tube the results are static; in the body the effect is cumulative. Metchnikoff himself has shown that the victory may sometimes be with the bacteria instead of the phagocytes; but it does not even then follow that phagocytosis is of no value, for the phagocytes may be carried with their contents to parts of the body where bactericidal action is stronger, while they protect other structures from the ingested bacilli, and may help to gain a victory for the body even though they themselves are killed.

Antibacterial action in the body is not confined to opsonins or to phagocytosis; and there is reason to believe that the spleen and the thyroid (possibly other organs) are concerned in combating bacterial diseases. If, however, the fluctuations in the opsonic index correspond with those in agglutinating and bactericidal power (as appears to be the case) the test will still be a useful clinical guide. The presumption is that all these actions are set going by the same mechanism, since they can all be started by injection of a vaccine. Even if phagocytosis were a purely subsidiary means of defence, a mere scavenging of dead bacilli, it would still be a useful guide if it were known to vary with the activity of other antibacterial actions, as it is more convenient for estimation than the alterations in agglutinating or bacteriolytic action; and there is so far no other test which quite takes its place. It has been shown that where the opsonic index is low (as in the centre of an abscess) agglutinating and bactericidal action also are low; while at the periphery of the abscess, where healing is going on, the opsonic and other antibacterial actions are high. It has also been shown by A. Latham and A. C. Inman that febrile body temperatures in tuberculosis and some other bacterial diseases vary inversely with the opsonic index. Now a high temperature is one of the greatest hindrances to recovery in phthisis, so that what raises the opsonic index and keeps it high is likely to help recovery. Many instances are recorded where a dose of vaccine has simultaneously raised the opsonic index and lowered the temperature, recovery following. Therefore, the presumption is that the fluctuations in opsonic index are a trustworthy guide to the degree of antibacterial activity, unless the test be vitiated by difficulties in technique. That this is not so is proved by the success attending Wright and his followers in diagnosis and treatment with the help of the opsonic test.

The tuberculo-opsonic test has been criticised on the ground that a large number of indices of tuberculous individuals plotted as a curve do not greatly differ from opsonic indices of presumably healthy persons similarly treated. This criticism seems to me to be based on the misconceptions that an index within normal limits is not common in tuberculosis, and that those who appear to be healthy are all free from tuberculosis. It would be quite easy to take a thousand observations of body temperature in undoubtedly phthisical individuals which should not greatly differ from a thousand other observations in the presumably healthy, and should present much the same curve when plotted; yet nobody doubts the value of thermometric observations in diagnosing tubercle. The same is true of opsonic indices, and in both cases the circumstances have to be taken into account.

Many tuberculous patients when put to rest in the open air will begin to have opsonic indices within normal limits who previously had supernormal ones; and others encouraged to take exercise will raise a subnormal index to within normal limits. Moreover, it is extremely probable that many of the apparently healthy are the carriers of quiescent or latent tuberculous foci, and these are likely to have a subnormal index. In estimating the tuberculo-opsonic index, wherever auto-inoculation is possible, all the circumstances must be taken into account, as there may be considerable fluctuations in the course of the day, even in cases which are almost free from fever; and if the index is subnormal at one hour and above normal at another, there will be yet another hour when the index is within normal limits. Many of the recorded instances of abnormal indices in the apparently healthy may be explained by the existence of latent tubercle which we know to be extremely common. Some are doubtless due to errors in technique, since there are many possible pitfalls, some of which have not so far been recorded in the medical papers.

In collecting blood for the test it is usually convenient to choose an early hour before auto-inoculation has been started by exertion of any kind. Coughing, the exertion of dressing, deep breathing, and other slight disturbances will in many cases cause auto-inoculation and alter the opsonic index. The controls should be taken at the same hour under similar conditions as to exercise. Sometimes, however, in doubtful cases two specimens are taken before and after exercise, or before and after massage or passive motion in local tuberculosis. If the difference is much greater than in the controls, this points to the existence of a focus of disease. A single control is not sufficient as a standard of comparison, as there may be a difference of 50 per cent. in the counts from two healthy individuals, and a corresponding error in the specimen for diagnosis. Care should be taken not to heat the blood in sealing the tube, as this destroys the opsonic power. Specimens which are properly sealed will keep for several days without perceptible change. French states that in ten days the opsonic index is lowered by half its original value; but from Fleming's statements[3] it appears that the rate of deterioration is not equally distributed, but is slow at first and goes on at an accelerating rate. In drawing off the blood the finger should not be unduly squeezed, since lymph from the tissues often has a higher opsonic index than blood from the same individual. Blood taken from a finger wet with perspiration is apt to yield a red serum which may interfere with the test. Some kinds of blood are auto-agglutinating, and this is more often the case with a red serum than with one free from hydrolysed erythrocytes.[4] Blood which is centrifuged before clotting is complete interferes with the test, as clotting then takes place in the incubator and either blocks the pipette or causes an irregular distribution of phagocytes or of bacilli. The blood should therefore be drawn off at least an hour before applying the test, and in cold weather it should be placed in a reasonably warm place to hasten clotting.

As regards the blood corpuscles, incomplete removal of the plasma will of course vitiate the test. Moreover, as phagocytosis is a vital action it will not take place properly with corpuscles which have been deadened with cold or kept

[1] R. W. Allen: The Opsonic Method of Treatment, London, 1907, p. 9.
[2] Biochemical Journal, vol. ii., Dec. 19th, 1906.
[3] Practitioner, May, 1908, p. 623.
[4] Fleming, ibid.

overlong in adverse conditions. In cold weather the blood should be kept in an incubator at blood heat for a quarter of an hour before the test is applied. Excepting for this the shorter the interval between collecting the blood and its being used the better. If the corpuscles are left very wet they should be evenly distributed by a circular twist of the tube. Indeed, this is in any case a wise precaution. Too rapid centrifuging is stated to cause clumping of the phagocytes and to lower the index.

In preparing the bacterial suspension a relatively strong salt solution (1·6 per cent.) should be used, as Wright has shown that weak saline solution will excite some phagocytosis even without any serum to help it. Care should be taken to avoid the entrance of other bacteria, as otherwise there may be some destruction of phagocytes or of bacteria in the incubator. Also unsterilised bacteria of more than one kind may overwork the phagocytes, whose capacity is limited. Whenever a bacterial suspension may have to be kept for some time it is advisable to sterilise it. Tubercle bacilli are agglutinated by the serum of a tuberculous patient, which interferes with the accuracy of the test. This agglutination can be prevented by heating the bacilli to 100° C. A bacterial suspension which is too thick or too thin or unevenly mixed causes misleading results. The most convenient strength is such as will give an average of three or four bacilli per phagocyte, but any number between one and ten will suffice. Where the numbers are low an extra number of phagocytes should be inspected—say, 100 or more, instead of 50 per slide. If decided clumps of bacteria are seen in the slides they should be rejected. Such a slide is unreliable and gives too low an index. In performing this test the blood corpuscles, suspension, and serum should be taken in this order, as otherwise the corpuscles or suspension may be contaminated. The most serious error of this kind is where a particular serum contaminates the other tubes. Contamination of the bacillary suspension with blood corpuscles is less objectionable than the reverse. Care should be taken to draw the suspension from the upper part of the tube and to prepare more than is actually necessary, as the lowest layers will be perceptibly thicker than the upper. In mixing the three constituents some of the phagocytes may be left behind if they are drawn too rapidly up and down the pipette. Accuracy in measuring the quantities is, of course, necessary, but with reasonable care and skill the error need not be great in this respect.

With imperfect appliances it may happen that the incubator is not kept at the right temperature. One cannot expect to obtain satisfactory results with a variable temperature, or one which is too high or too low. Also, I think it advisable to keep the pipettes horizontal in the incubator, to prevent gravitation and unequal distribution. In making the slide preparation it is essential to spread the material in a very thin film, with a definite edge well within the margin of the glass, to avoid difficulties in counting. I have found it convenient to spread in a series of jerks, making a wavy or striated film; but Wright is in the habit of making the film with one continuous sweeping movement. For some time past I have been using for a spreader a piece of glass divided lengthwise, as recommended by Allen, as it gives two edges to the film each of which can be easily examined. If the film is too thick the phagocytes remain rounded instead of being flattened out, in which case bacilli may escape notice along the edges of the phagocyte and elsewhere. Too deep a staining of the phagocyte or insufficient staining of the bacilli may also lead to errors. On the other hand, if the phagocytes are too faintly coloured they may be altogether missed. Films are easily spoilt by insufficient decolouration with acid, but such a mistake would not be made by anyone who has had sufficient practice. Wright is of opinion that the Ziehl-Neelsen method of staining destroys some of the phagocytes, and has therefore abandoned it for the aniline or fuchsin method. I am, however, under the impression that the degree of heat used with the Ziehl-Neelsen solution has something to do with the result. If the hot stain is poured over the slides in a cool photographic dish, the specimens can be well stained without any damage. This method may not be quite so expeditious as Wright's own method, but several dishfuls of slides can be fixed and stained by it in less than an hour. In counting the bacilli, the same rules should be observed for all the specimens alike. Slides with clumps of bacilli or large masses of cells should be rejected. Fragments of bacilli should either be counted as distinct bacilli or as fractions of a bacillus. Uncountable clusters of bacilli should not exist in a properly prepared specimen; if a few are present, the numbers should be estimated as nearly as possible. It is customary in some laboratories to put down each such cluster as ten bacilli. All bacilli touching a phagocyte should be included in the count.

In examining a slide it should be remembered that phagocytes vary greatly in apparent size, according to the extent to which they have been flattened out. Mononuclears, even if covered with bacilli, are best disregarded. Owing to the arrangements at St. Mary's Hospital it has been possible to do much of the counting in duplicate or by three people in succession; and judged by this check, Wright is of opinion that with reasonable care there should not be a greater error than 10 per cent. Fleming (*loc. cit.*) gives a number of comparative figures which substantiate this statement. From time to time I have had the opportunity of comparing my own work with that of other laboratories, and have found the difference in results very small.

Clinical applications of the opsonic test must be left for another communication.

Farnham.

A CASE OF MULTIPLE ANEURYSMS OF THE AORTIC ARCH AND THORACIC AORTA.

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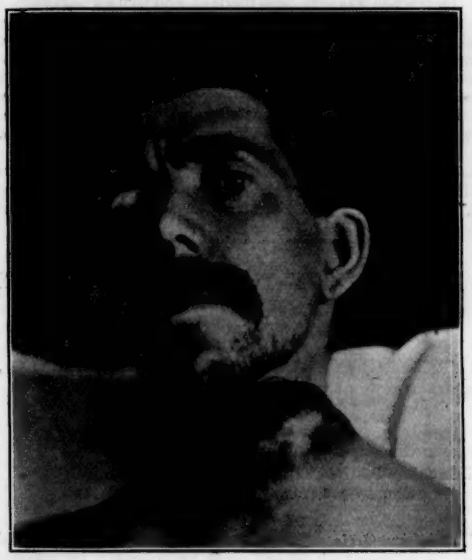
THE patient, a man, aged 45 years, a shopkeeper, was admitted into the London Hospital, under the care of Dr. Cecil Wall, on June 27th, 1908, complaining of a swelling in the upper part of the left side of the chest, together with radiating pain over the left shoulder, shooting down the left arm, causing numbness of the fingers, and hæmoptysis. The illness commenced two and a quarter years previously, when he seemed to have "cold upon cold," and finally, two years ago, suddenly brought up two to three pints of blood. He attended the hospital out-patient department, and was diagnosed at that time as "Old hæmoptysis. Consolidation of the right apex (? tubercle). Neuritis of the right cervical plexus." The patient described this pain as extremely acute, often causing him to keep his head bent towards the right side. He also had shooting pains along the right arm, similar to those he described on admission in June, 1908, as occurring along the left arm. The symptoms abated somewhat and he remained fairly well until October, 1907, when he commenced to experience the pain above described in the regions of the left shoulder and left arm.

On admission on June 27th, 1908, he complained of: 1. A pulsating swelling over the inner end of the left clavicle of about the size of a small hen's egg. This swelling was first noticed three months previously. It was very painful and tender and rapidly increasing in size. 2. Slight cough and shortness of breath. 3. A coldness and numbness of the extremities, especially the hands and feet, which he could not keep warm. 4. Hæmoptysis; small clots occasionally; no further large quantity was expectorated after the hæmoptysis at the commencement of the illness. 5. Inability to use his right eye. This was found to have been present since birth and was on account of a "congenital ptosis." The tumour had expansile pulsation, was dull on light percussion, and gave a sense of fluctuation. The skin over it was slightly reddened. The area of cardiac dulness was slightly increased, but resonance was present between this and the dulness over the tumour. The heart sounds were normal. Anæmia was marked and the superficial veins of the upper part of the thorax were slightly dilated. The pressure of the carotid pulse was 108. No pulsation was palpable at either wrist; the right temporal was palpable, but not the left. The carotid pulses were markedly unequal and asynchronous. No tracheal tugging was present, nor was there any laryngeal paralysis. The voice was somewhat hoarse, but the cough was not

"brassy." No glands were felt. The hands and feet were quite cold. There were crepitations present at both apices, whilst at the right apex the breath sounds were bronchial in character and at one spot whispering pectoriloquy was present. There were proptosis and divergence of the right eye, but the eye movements were free. The pupils were small but unequal and reacted both to light and on accommodation. The fundi and media were normal. There was no history or sign of past syphilis. The patient was extremely temperate, and had never done any really hard manual labour. The temperature was raised to 100° F. at night. The urine was natural. Skiagrams taken on admission showed three distinct bulgings of the thoracic aorta: (1) of the descending aorta; (2) at the junction of the transverse and descending arch; and (3) of the ascending arch near the spot where the right innominate artery takes its origin.

Subsequent history.—The tumour on the left side gradually got larger until it reached the size shown in the accompanying illustration taken a few days before death. No



Reproduction of photograph showing the two dilatations of the arch present just before death. The large one on the left ruptured. The illustration also shows the ptosis present from birth on the right side.

murmur was ever heard over it. It remained an expansile pulsating tumour, the skin over it becoming more and more red until, on Sept. 10th, it gave way and general oozing from the sac commenced. This partially stopped for a few days, but a week later the large clot which had formed gave way and the patient immediately died.

About four weeks previously another tumour gradually made its appearance on the right side in the region of the right sterno-clavicular articulation, evidently the old dilatation at the junction of the ascending and transverse arches again becoming patent and approaching the surface. This tumour also had expansile pulsation, but no murmur was heard. The radial and temporal pulses remained absent and the physical signs at the apices of the lungs practically the same until death.

Summary of necropsy.—Extreme anæmia. Rupture of large aneurysm of the arch and ascending portion of the thoracic aorta through an erosion of the skin between the first and second ribs on the left side. Dislocation upwards of the left clavicle and separation of the first rib from its cartilage. Erosion of the periosteum of the clavicle, first rib, and adjacent sternum on the left side. Thrombosis of the right subclavian, left common carotid and subclavian arteries at their origins. Small erosion of the trachea. In communication with the aortic aneurysm a saccular aneurysm of the innominate artery protruding through the first intercostal space on the right side beneath the pectoralis major. Erosion of periosteum of first and second ribs and adjacent sternum on the right side. Slight dilatation and messortitic scarring in the upper portion of the descending thoracic aorta; button atheroma of the lower part of the descending thoracic aorta and atheroma of the aortic commissure; calcareous plaque in intima of abdominal aorta close to bifurcation. Post-mortem staining of aorta. Calcareous atheroma of coronary arteries; cerebral arteries free. Great œdema of both arms. Small patches of fibrocaseous tubercle behind and below the apex of the left lung and in the apex of the left lower lobe. Fibrocaseous nodule in the course of a bronchus behind and below the apex of the right lung. Anthracosis and œdema of lungs. Obliterating fibrous pleurisy right; fibrous pleural adhesions over left apex. Anthracosis of tracheal and bronchial glands. Small fibrous scars on surface and within substance of liver (3 pounds 13½ ounces). Submiliary tubercles in liver. Miliary tubercles in cortex of both kidneys (together 14 ounces). Soft spleen, with hypertrophy of Malpighian bodies (5½ ounces). Calcareous mesenteric glands. Slight fibrosis of right testicle. Small polyp in splenic flexure. Mucous catarrh of stomach. No scars on legs or penis.

To the right of the sternum was a slight swelling between the second rib and the inner end of the clavicle. Immediately to the left of the sternum, over the first rib, there was a ragged ulcer of the skin; this was approximately circular, about two inches in diameter, and filled with red gelatinous clot. When this clot was removed the base of the ulcer was seen to be formed by a mass of firm yellow laminated clot in which lay the left border of the sternum, the first rib, and the clavicle. These bones were devoid of periosteum and eroded. Further, the first rib was separated from its junction to the costal cartilage, and the clavicle was separated from its sternal articulation and lifted half an inch upwards and forwards. When the skin and subcutaneous tissues had been reflected the swelling on the right side was found to be caused by a mass of soft, granular, yellowish clot, which had broken through the pectoral muscles and extended inwards on to the anterior surface of the sternum. This clot protruded through an aperture in the first intercostal space on the right side close to the sternum, and the sternum and first and second ribs in this region were devoid of periosteum and eroded.

The removal of the sternum and the costal cartilages of the third to the ninth ribs exposed a large saccular dilatation of the aorta, which, at and above the level of the second ribs, filled the thoracic cavity almost completely and was firmly adherent to the chest wall. The dilatation was approximately of the shape of a heart, the apex of the "heart" lying at the commencement of the aorta. The greatest diameters of this sac were: vertically, 4 inches; anteroposteriorly, 3 inches; and from side to side, 5 inches. The upper border showed a mesial and two lateral convexities. The right lateral convexity was continuous with the mass of clot which had burst through the first intercostal space on the right side. From its posterior aspect arose the right subclavian and common carotid arteries, so that this portion of the aneurysm was formed, in part at any rate, by dilatation of the innominate artery. The mesial convexity was continuous with the clot which had ulcerated the skin to the left of the sternum. From the posterior aspect of this arose the left common carotid and subclavian arteries.

On opening the aorta the semilunar valves were found to be competent to the water test; the commissure and sinuses of Valsalva were not dilated. The intima of the lower inch of the ascending aorta was stained a deep red and showed large irregular yellow thickenings. There was no definite scarring. The dilatation of the aorta commenced abruptly one inch above the commissure. On the posterior wall of the dilated cavity was a Y-shaped ridge which divided the cavity into a superomesial and two lateral sacs, corresponding to the three convexities seen externally. The interior of the right sac, which corresponded to the dilated innominate artery, was covered by a layer nearly one inch thick of adherent, white, laminated clot. This clot was found to be continuous through a large aperture in the wall with the soft clot which lay beneath the skin to the right of the sternum. The superomesial sac was also lined by firm laminated clot which completely covered the apertures of the left subclavian and common carotid arteries. In the anterior and upper part of the sac there was a deficiency in its wall through which the clot passed to form the base of the ulcer on the skin to the left of the sternum. When the clot was removed from its lowermost part, in the fork of the Y-shaped ridge, an aperture of the size of a pin's head was seen which opened into the trachea 1½ inches above its bifurcation. The left lateral sac lay somewhat posteriorly to the other two; in its lower and posterior part was an aperture leading into the descending aorta. This aperture was only 1½ inches from the point where the ascending aorta commenced to dilate; it had rounded margins and corresponded in size to the lumen of

the slightly dilated descending thoracic aorta. On removal of the clot the wall of the aneurysm was found to be thin. The intimal surface was smooth and showed numerous small pits.

The upper two inches of the descending thoracic aorta were slightly dilated and the intima showed slightly raised thickenings of a yellowish-white colour, cartilaginous in appearance. Between these thickenings the intima showed longitudinal wrinkles and some deep pits. On section the media was narrow and ill-defined, whilst the thickened intima was fibrotic. In the lower part of the descending thoracic aorta and in the abdominal aorta there were numerous large nodular thickenings, between which the intima showed some fine longitudinal wrinkles. These nodules were seen on section to be formed by a thickening of the intima, which was firm and cartilaginous in its upper part, but soft and yellow in its deeper layers. The media was well defined and only slightly, if at all, narrowed below the intimal thickenings. Close to the bifurcation of the aorta was a smooth calcareous plaque in the intima.

Of the four large arterial trunks arising from the aneurysm the right common carotid was the only one the opening of which was not completely occluded by the firm clot lining the sac; the opening of this artery was wide. The lumen of the right common carotid was somewhat dilated. The lumen of the left common carotid contained no clot, but was considerably contracted and in its lowest 1½ inches was barely patent. The subclavian arteries were of normal calibre.

Microscopic examination.—The aorta. Eight portions were removed for microscopic examination from the aorta on the distal side of the aneurysm. Two of these were sections of the nodules in the lower part of the descending thoracic aorta and in the abdominal aorta; they showed under the microscope the changes characteristic of atheroma. The intima was thickened and formed nodular elevations. At either side of the nodules two distinct layers could be distinguished in the thickened intima, an inner fibrotic layer, and an outer layer which contained stout elastic fibres and corresponded to the hypertrophic elastic and the longitudinal muscle elastic layers of Jores. In the nodular elevations the outer of these two layers was, with the exception of its innermost portion, entirely replaced by structureless débris, in which there was some calcium. The media was unaltered or a few of its innermost elastic fibres were destroyed. The adventitia showed no abnormality. The remaining portions were removed from the upper part of the thoracic aorta where the intima was wrinkled and pitted. They showed under the microscope the appearances of mesaortitis. The intima was thickened and consisted of stout connective-tissue fibres with very little elastic. It was seldom possible to distinguish individual layers in the thickened intima, and there was no degeneration of the connective-tissue fibres. The media was very narrow. In places it was replaced by fibrous tissue which united the intima to the adventitia; in others it contained patches of fibrous tissue, whilst its elastic fibres were swollen, tortuous, and darkly stained, and were arranged in small isolated groups. Vessels passed from the adventitia through the media to the fibrotic intima; these vessels were surrounded by a zone of round-cell infiltration, which in a few places was of considerable breadth. The adventitia was thick and fibrotic and some of the arteries showed an endarteritis fibrotica.

The liver.—Large fat droplets were seen in the cells of the periphery of most of the lobules in sections stained with Sudan. Close to some of the portal systems were small rounded granulation areas which consist of a loose network of swollen spindle cells, with numerous lymphocytes in the periphery. The centres of these areas were often necrosed and in one was a multinuclear giant cell with no definite border and with the nuclei near its centre. There were also areas in which the parenchyma was occupied by a network of fibrotic strands, most of which were connected with portal systems. These strands were formed in their central parts by connective-tissue fibres with spindle nuclei, and between the fibres were some proliferating bile-ductules and a few isolated liver cells; in the periphery of the strands were numerous lymphocytes. One or two of the strands were continuous with the rounded granulation areas. Within the meshes formed by these fibrous strands the parenchyma consisted of columns of large cells. No tubercle bacilli and no spirochætæ could be detected in specially stained preparations.

The kidney.—In the cortex was a small granulomatous nodule. Its centre consisted of a structureless substance which was stained deeply by eosine and contained nuclear fragments; round this was a zone of closely packed connective tissue cells with spindle nuclei, whilst in the extreme periphery were lymphocytes. Only one portion of the kidney was reserved for microscopic examination, and in this no giant cells and no tubercle bacilli could be found in the granulomatous nodule.

Remarks.—The interesting features of this case are: 1. The absence of any of the usual determining circumstances of aortic aneurysm—viz., syphilis, alcohol, hard work, &c., or of any evidence of a long-sustained high blood pressure. 2. The extraordinary tendency for clotting and attempts at spontaneous cure. Even when rupture took place and oozing commenced this stopped for a few days, a large clot forming, until the final more extensive rupture proved immediately fatal. 3. The old history of hæmoptysis, evidently one of the dilatations (probably that of the descending arch) ulcerating into the trachea two years previously. The ulceration on the trachea was seen post mortem, and though old tubercle was present at the left apex, no extensive tuberculous process had invaded the lung, making it practically certain that the large sudden hæmoptysis was of aneurysmal origin. 4. The spontaneous cure of the aneurysm of the right side with cessation of symptoms, followed two and a half years later by it again becoming patent after the appearance of the larger and more rapidly growing dilatation of the left side. 5. The multiplicity of the dilatations.

Our best thanks for permission to publish this case are due to Dr. Cecil Wall, under whose care the patient was, and to Dr. Hubert M. Turnbull, Director of the Pathological Institute.

A REPORT UPON THE ROUTINE USE, BY THE OPEN METHOD, OF A MIXTURE OF CHLOROFORM AND ETHER.[1]

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1. *The anæsthetic.*—The mixture is made of chloroform 2 parts by volume and ether 3 parts by volume. In hospital cases Duncan and Flockhart's methylated (red label) chloroform and Huskisson's "pure methylated" ether were used to make the mixture. A similar mixture was usually employed in private practice, though in certain cases one with ethyl-alcohol constituents was used for purposes of comparison.

2. *The method of use and apparatus employed.*—The mask employed (Fig. 1) is essentially a Skinner's mask and consists of a wire frame over which is stretched a single layer of thin flannel. The mask thus formed presents an oval opening 5 inches by 3 inches and is capable of close adaptation to the face. The vault of the mask is high enough not to touch the nose when its rim rests upon the face. The size of the mask and the material with which it is covered are important details. It is found, for instance, that if two layers of the thin flannel are used instead of one an equal quantity of anæsthetic produces different effects in the two cases. The small tube passing through the middle of the stretched flannel is only of use when oxygen is required. A mask of the same dimensions, but with a guttered rim, a handle, and no oxygen tube, has generally been used by one of us (J. B.). In using the mixture a gradual process is followed. The mask is applied to the face and, after a few breaths, the mixture is added, a few drops at a time. A regulating drop bottle is used capable of delivering the mixture in isolated drops, in a rapid series of drops, or in a continuous stream. (Fig. 2.) During the first two minutes the mixture is poured upon the mask in such small quantities at a time that there is never more than a quarter

[1] To be presented to the Anæsthetics Committee of the British Association for the Advancement of Science, August, 1909.

of the mask moist. From this time it is added more freely until, roughly speaking, in the case of men the whole surface of the mask, in the case of women three-quarters of the surface, and in the case of children one-half of the surface, is kept moist with the liquid. As a rule at least four minutes pass between the beginning of the administration and the moment when the maximum quantity to be used is upon the mask.

3. *The nature of the cases in which the method has been employed.*—The cases in which the method has been employed include a variety of operations comprising examples of almost all the graver abdominal procedures, which were particularly chosen as providing a severe test of the efficacy of any anæsthetic and method. Thus, pan-hysterectomies, removal of double pyosalpinx, difficult appendicectomies,

FIG. 1.

FIG. 2.

excisions of rectum, and "complete" amputations of breast figure amongst the cases. Moreover, the patients comprised individuals of widely differing physique and states of health. They ranged from the very healthy muscular police sergeant to that of the emaciated anæmic young woman, the subject of long-standing colitis. Several so-called "bad subjects" have been anæsthetised with success—for example, heavily built, florid, thick-necked men, with irritable throats and nasal obstruction, patients with ill-developed lower jaws, &c., subjects who invariably give trouble under "gas and ether." In age patients have ranged from the infant of 14 months to old persons over 80 years of age. Several patients were markedly alcoholic, others were asthmatic and orthopnœic; one patient was suffering from pneumonia, and in this case oxygen was simultaneously administered through a tube passing through the mask. One case, that of a young woman who underwent laparotomy for the removal of double pyosalpinx, was a good example of the subject who, originally favourable, is at the time of operation in a condition of extreme feebleness from acute illness of some duration. Other examples of unfavourable conditions present in the patient were Graves's disease, acute bronchitis, and extreme anæmia. We have already conducted about 300 administrations and are continuing to employ the method. The preparation of patients has varied to some extent in private cases. In hospital patients it was as follows. On the afternoon of the day preceding the operation a dose of castor oil, usually about one ounce, was given. On the morning of the operation (which took place after 1 P.M.) an enema was given at 6 A.M. Tea and bread-and-butter were given at 7—two slices and one cup. A pint of beef-tea was given at 10. The enema was repeated if necessary.

4. *The time required for inducing anæsthesia and the symptoms evoked during induction.*—Time of induction is reckoned from the moment of commencement of inhalation to the moment when the patient is ready for the operation. That this point had been reached was judged by the presence of (1) faint or absent corneal reflex; (2) complete muscular relaxation; and (3) presence of inspiratory stertor. The average induction period in a series of hospital cases was 8½ minutes; the longest time spent in securing readiness for operation was 17 minutes; the shortest time was 5 minutes. With children 5 minutes was the rule, and this was the time also in the case of a woman very anæmic and ill with peritonitis. The longest induction period was in the case of a middle-aged carman, red faced and accustomed to large amounts of beer, who had to be operated on for fistula in ano.

At the beginning of inhalation the vapour is not, as a rule, objected to, particularly if constituents made from ethylic alcohol be used. There is never any difficulty in getting patients to breathe freely. Excited talking, becoming incoherent, or quiet busy muttering occurred in 10 of 40 hospital cases. Some rigidity of limbs and of jaw muscles occurred in 18 of these cases. Excited movements of limbs or trunk so forcible as to require restraining lest the patient should fall off the couch occurred in 1 case. Excitement of the above kinds when it occurred at all was always after consciousness had gone—at any rate, to such an extent that the hearing was already quite lost. Secretion of mucus and saliva is not a feature of the induction stage with this anæsthetic. In difficult cases there is less temporary interference with respiration during the induction stage than when employing ether or "gas and ether."

5. *Amount of mixture required.*—Generally speaking, it is found that in the case of an adult male the mask has to be kept moist over its whole surface after the first four minutes until full anæsthesia is induced. After this it is necessary to keep it moist to that extent only in the case of "difficult" subjects. In the case of easier male subjects and in the case of women and of children only half of the mask is kept moist when anæsthesia is once established. In the case of children and women who are particularly feeble never more than half the mask is moistened from first to last and most of the time only a quarter. In a series of hospital cases the average amount of the mixture consumed was one ounce in 14 minutes; the least used was half an ounce in 22 minutes (feeble infant); and the most used was three and a quarter ounces in 30 minutes (fat alcoholic woman).

6. *The condition of the patient during operation and the occurrence of shock or other reflex effects.*—A condition which is highly satisfactory with regard to the state of the circulation, the respiration, the relaxation of muscles and the immobility of the patient can almost invariably be obtained and maintained. Respiration is usually rather deeper, the pulse quicker, and the colour better than in average chloroform cases. The pupil is usually of moderate size. In one case only was a change of anæsthetic demanded. In this case, during the removal of a gall-stone, a condition of persistent rigidity of the rectus led to a change from the mixture to ether (F.H.). In cases with marked respiratory defect the mixture may be given with oxygen. The type of anæsthesia obtained is more like that secured by low percentages of chloroform vapour than like that seen with ether. It is generally possible to secure a condition in which the corneal reflex is just present without the occurrence of inconvenient contraction of muscles or of coughing or retching. Reflex effects due to the operative procedure have been noted in several cases. Serious disturbance of pulse or of breathing arising in this way appears to be less liable to occur with this mixture than with pure chloroform, though more likely than when ether alone is given. Reflex effects during anæsthesia, chiefly bearing upon respiration, were evident in 15 of 75 carefully recorded cases. In most cases these effects were in the nature of stridor or of grunting expirations. They occurred during stretching of anal sphincter, forcible pulling up of uterus, internal urethrotomy, &c. The most marked instance of respiratory effect was produced by dragging upon the sac of a hernia and this case afforded an excellent example of the degree to which such an effect can go, respiration becoming absolutely obstructed and the chest having to be compressed three times before breathing started again. At the same time the pulse scarcely showed any change. Reflex movements of limbs or reflex rigidities of muscle were very rarely met with and this absence was particularly noticeable in rectal operations which, under ether, are frequently attended by such reflexes. Slowing of pulse as a reflex effect was occasionally observed. In a few cases well-marked pallor occurred during surgical manipulations. Severe surgical shock, resulting in disappearance of pulse, dilatation of pupils, opening of eyes, pallor, and stopping of respiration, was seen in one case, in which laparotomy was being performed upon a thin anæmic young woman, the subject of extreme chronic constipation. The

corneal reflex was faintly present at the moment when symptoms of shock suddenly showed themselves.

7. *After-effects.*—Speaking generally, recovery takes place rapidly and without any disagreeable after-effects, provided, of course, that the patient has been properly prepared. In no cases of our series were there severe after-effects. The worst instance was that of a case of removal of glands from a young man, aged 25 years. In this instance there was vomiting seven times during the first 14 hours after recovery of consciousness. Liquid nourishment was taken between the attacks of sickness and there was no serious constitutional disturbance. In several cases there was vomiting once or more after recovery of consciousness. In one of these the vomit consisted of altered blood on the two occasions on which it occurred; this was a case of gastro-enterostomy. In practically all cases there was, 24 hours after operation, complete freedom from sickness and from feeling of nausea. Our belief is that after-effects are less common with this method than with most others now in use.

8. *Conclusions.*—Our experience leads us to believe that this mixture used in the particular manner described is a trustworthy and comparatively safe anæsthetic. By this we mean that if the simple principles are adhered to of starting gradually and limiting the moistened area of the mask over-dosage is very unlikely to occur. It seems to us highly probable that the percentage of chloroform vapour thus offered to the patient is within the safe physiological limits. Moreover, the danger of post-anæsthetic lung complications, which detracts from the otherwise safe nature of a similar ether anæsthesia, is apparently no greater than is the case with chloroform. In our judgment the fact that even the most vigorous subject may be anæsthetised by this mixture on an open mask marks a distinct step in the progress of practical anæsthetics. The Rendle inhaler, and all similar semi-open inhalers for the A.C.E. or the C.E. mixture, should, in our opinion, now be discarded. The method described seems to us to contain the advantages of open etherisation with those of percentage chloroformisation, although, of course, it does not pretend to absolute scientific accuracy so far as vapour percentages are concerned. By this method chloroform is rendered safer than when administered *per se* on a Skinner's frame and very much safer than when administered on lint or towel. We go so far, indeed, as to express the view that the administration of undiluted chloroform by means of lint, handkerchief, or towel should henceforth be proscribed in practice. The anæsthesia produced by this method is doubtless a chloroform anæsthesia in its essential features, but the dilution with ether renders it possible to present continuously a weak and comparatively safe chloroform percentage to the patient. Moreover, this mixture may, with the rarest possible exceptions, be used whenever chloroform itself is indicated. But it has advantages of another kind. It answers admirably and certainly far better than ether in so-called difficult cases, particularly in those liable to display symptoms of obstructed breathing during induction and in those in which the secretion of mucus would constitute a difficulty. As a substitute for the "gas"-ether-chloroform sequence this mixture and method have much to be said in their favour. We have come to the conclusion, indeed, that some of the slight difficulties experienced by the anæsthetist in securing the most favourable surgical conditions during abdominal operations are often dependent upon the presence of small quantities of mucus within the upper respiratory passages resulting from the use of ether during the induction stage. Though rapid induction may be depended upon by "gas and ether" or similar methods before proceeding to chloroform or C.E. mixture, a penalty often has to be paid, so to speak, for this rapid induction—viz., some disturbance in the smoothness of the subsequent anæsthesia. Although the method here advocated has the disadvantage of a comparatively lengthy induction the eventual type of anæsthesia is highly satisfactory. In a word, we have no hesitation in recommending this mixture, administered by means of the particular mask and method we have described, as one which is capable of a wider range of applicability in general surgery than any other anæsthetic or mixture with which we are acquainted. Whilst the anæsthesia we have attempted to describe is undoubtedly safer than that produced by sprinkling undiluted chloroform upon lint, towel, or any form of open inhaler, we do not contend that it is safer, *whilst the patient is upon the operating table*, than ether anæsthesia. If, however, we take into account the risks of ether anæsthesia *after the operation* we are of opinion that the method compares favourably with all known methods of etherisation, so far as safety is concerned.

HIGH-FREQUENCY CURRENTS AND THEIR MEDICAL APPLICATION.[1]

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IN January, 1898, D'Arsonval first described his methods of applying electric currents of "high-frequency" or "high potential"—i.e., tension or pressure—to the human frame, so their medical history is but a matter of nine or ten years. True, the oscillatory nature of the discharge of a Leyden jar or a condenser under particular conditions (originally pointed out by Joseph Henry of Washington) was mathematically expressed by Lord Kelvin as far back as 1853, but for practical purposes the application of high-frequency currents in the treatment of disease is quite a recent affair. The D'Arsonval treatment, like any other new method, passed first through that stage in which it is vaunted as a panacea for almost every disease, to be followed by the period of universal depreciation where it is reckoned of no value at all. The first corresponds to the time that a treatment is carried out almost solely by its originator and a few able assistants or pupils; the next to its exploitation by a host of more or less unskilled persons.

High-frequency treatment now enters on the third stage, where discrimination is possible between the cases where it is beneficial and those where it is decidedly injurious or even dangerous. The physiological action and effects of the currents have been studied at length both on animals and man; contradictory results obtained by different observers have been or are being brought into line, and we are now in possession of a working hypothesis which gives us (1) the indications for use or avoidance in different varieties of disease, and (2) the particular form in which, where it is of value, it is to be applied to obtain beneficial results.

In a paper on high-frequency currents it is as well, perhaps, to recall to your memories their true nature. Briefly speaking, they are "succeeding groups of electric oscillations produced by the discharge at intervals of a charged condenser." [Dr. Bailey then shortly described the usual method of producing these oscillations, and continued:—]

The currents of high frequency, produced in a modern apparatus, possess a potential (tension or pressure) of perhaps 10,000 volts; they are alternating (alternately positive and negative), changing their sign in the short period of one-millionth or thereabouts of a second. According to the amount of current passing they give readings on a hot-wire milliampèremeter up to a thousand milliampères. They travel with the same velocity as light, x rays, and all transverse vibrations of the ether—i.e., 300,000 kilometres per second—and they possess a wave length of from 300 metres to 30 centimetres. It is manifest that if the organism be permeated by currents of such tremendous pressure and so rapidly alternating it must be in a state of microscopic vibration in which there is no time for a muscle or nerve (or macroscopic part of muscle or nerve) to be sufficiently stimulated by a positive or negative charge of electricity to produce the effects the ordinary galvanic, faradic, or sinusoidal currents cause. There is no time for a response, either sensory or motor, before the whole conditions of positive or negative sign, &c., are reversed. Nevertheless, every cell or fibre of the organism is undergoing a microscopic battering or massage under the influence of the current, and to this microscopic battering, no doubt, the physiological effects are mainly due. Motor and sensory nerves respond only to electric stimuli whose period is not less than one-ten-thousandth of a second, the period of high-frequency currents being but one-hundredth to one-ten-thousandth of this; therefore we find that on the one hand they produce neither any immediate pain or other

[1] A paper read before the Brighton and Sussex Medico-Chirurgical Society.

sensory effect, nor on the other do they cause any muscular contraction of voluntary muscles.

The exposure of the neuro-muscular system, however, to these enormous differences of electric pressure of an oscillatory character does gradually induce the condition termed "inhibition"—i.e., the onset of a state in which stimuli, normally capable of exciting response, have no effect whatever. If the electrode of a high-frequency apparatus (attached to the end of the resonator which gives currents of high pressure rather than quantity) is placed in an arm-bath filled with warm water, the arm of an experimentee being placed in this and a current of 100 milliampères passed into the water for three or four minutes, the arm becomes blanched dead white up to the upper limit to which the warm water extended, the skin insensitive to a needle and numbed, and there is great loss of muscular power, and it takes an appreciable time and vigorous rubbing to dispel these results of the experiment. The electric tension of the water in the bath is great enough while the current is passing to give a half-inch spark if the finger is brought near it.

For practical purposes of value the applications of high-frequency currents may be divided into two varieties: (1) the method where large currents (in "auto-condensation," up to 1000 milliampères, an average being 350 milliampères) pass through the body; and (2) the method where the electricity is applied under very *high pressure* but the quantity is comparatively small; such are the effleuve and the electric spark—these latter are the more especial "high-tension" applications. The first type, the *quantity* type, produces effects which in many respects differ from the second or *tension* type; this is most evident in reference to vascular tension, for while "auto-condensation" causes general vascular dilation, flushing, sweating, and general hypotension, the "effleuve" causes spasmodic contraction of the skin vessels, goose skin (the intrinsic involuntary muscular fibres of the skin undergoing contraction), and a general rise of blood pressure of a variable degree, but most marked when the brush discharge is applied to the cervical and upper dorsal spine. The extreme effects of a high-tension current applied locally by an arm-bath is an example, the condition resulting being comparable to the "local anæmia" type of Raynaud's disease.

Dr. Doumer of Lille, in a paper read before the Electro-Therapeutic Section of the Royal Society of Medicine, pointed out that the study of electricity in the form of high-frequency or high-tension currents will be likely to lead to more valuable results than the investigation of other forms of electricity which produce, and the effects of which are masked by, secondary phenomena and their effects. "Continuous (or galvanic) currents," he says, "cause electrolysis and migration of ions—interrupted (or faradic) currents, muscular contractions—these may mask physiological effects produced exclusively by electric energy. High-frequency currents produce no chemical effect, no sensation, no muscular contractions, nevertheless they do cause manifest definite general biological effects. The organism is plunged into an oscillating magnetic field, giving rise to currents equally oscillating in the deeply seated tissues, which do not, however, produce any permanent displacement of the ionic masses." He concludes, first, that electric energy by itself, from the results of experiments on germinating seeds, does cause an increase of cellular vitality with an increase in the nutritive exchanges—i.e., it has a real action on the living cell, increasing vital exchanges, heat production, respiratory exchanges, excretion of effete products, this quite independently of action on a vascular system; secondly, that electric energy does act in reducing local congestion by its decongestive action; this has been shown experimentally: if the inter-digital membrane of a frog's foot be inflamed by the application of a drop of sulphuric acid the effleuve will cause the stenosed vessels to release themselves, the dilated vessels to contract, the circulation becoming normal when the vessels have resumed their normal calibre; thirdly, electric energy does produce a general action on the whole vascular system, which action varies according as the quantity or the tension of the electricity is a predominating factor, great quantity leading to hypotension, great potential or pressure to hypertension of the whole vascular system; and fourthly, it causes the phenomena of "inhibition"—anæsthesia of sensory nerves and inexcitability of voluntary muscles.

These four physiological actions being now recognised—viz., increased cellular activity, local decongestive action, alteration of general vascular tension, and inhibition—we shall be led to treat diseases or conditions where these physiological results are beneficial and to avoid those where they are hurtful. We can study our cases and formulate an opinion as to whether the good effect produced by one action may be counterbalanced or overshadowed by the prejudicial effect of another action, or we can so modify our remedy that one effect is produced while another is almost suppressed, and so on.

Auto-condensation.—Treatment by this method is carried out by placing the patient either recumbent on a couch or, better, sitting on a bent-wood easy chair on which is a long mattress cushion stuffed with rubber waste, the patient being thus insulated by the rubber cushion and an insulated foot-stool. A sheet of iron covers the chair-back. When the patient and the sheet-iron are severally attached to the two proper terminals and the "quantity" current applied, the patient and sheet-iron become parts of a "condenser" (the rubber cushion being the di-electric), hence the term "auto-condensation." A certain class of individuals who are subject to more or less continued vascular hypertension are benefited, temporarily at first, but after a while permanently, by this treatment. Many of these cases perspire, even in very hot weather, only on quite extreme exertion; their heat-regulating centres do not work, they feel surface-cold in winter and are prostrated by heat in summer. By auto-condensation the vascular tension is reduced, as measured by the Riva-Rocci instrument, some millimetres. Headache, a common symptom, is much relieved or abolished.

CASE 1.—The patient, a woman, aged 49 years, suffered for years from migrainous headache occurring three or four times a week. Tension by R.R. = 140 millimetres. After six auto-condensation treatments of 500 milliampères for 15 minutes at a time the tension dropped to 125 millimetres permanently. The headaches now left her for three months, after which they returned, but were again abolished by auto-condensation. She now takes potass. citrat. (gr. 30) and potass. nitrate (gr. 5) occasionally and remains almost free from headaches.

CASE 2.—The patient, a man, aged 60 years, had pain in his legs which came on after walking about 50 yards. He was obliged to stop until the pain passed off; he would then walk on and the pain would recur, and so on. The condition seemed to be one allied to intermittent claudication. Auto-condensation was used, the patient obtaining the current from the feet by a large metal foot electrode; 350 milliampères, eight treatments. The patient was able to walk two miles without former symptoms.

CASE 3.—The patient was a woman, aged 60 years. Symptoms: giddiness, sleepiness, great depression, occasional "wandering," memory failing, onset gradual. Arterial tension found to be 160 millimetres. Condition returned to normal with 12 treatments, combined with dietetic and medicinal measures.

In two patients who felt extremes of heat and cold very severely, and whose circulation was evidently very defective, a method was used which gave excellent results. This was to give auto-condensation for ten minutes in order to dilate the vessels and immediately follow it by ten minutes' high-tension effleuvation to the cervical and upper dorsal spines to cause vascular contraction on the principle of exercising the vessels and stimulating the heat-regulatory centres.

High tension.—For general application of this type of current the patient is best seated in the chair and insulated by the rubber cushion and foot-stool. He holds a metal electrode as in the case of auto-condensation, but this is attached to the top of the resonator, and the other end of the resonator is connected to earth by an earth-wire. Neurasthenics, who commonly suffer from arterial hypotension, are best treated by this method; they should never have auto-condensations, or only exceptionally. Of six cases of neurasthenia, a cure resulted in two and two were improved.

CASE 4.—The patient was a woman, aged about 35 years, holding a very onerous public position. She had been obliged to give up all her engagements in consequence of nervous breakdown. Arterial pressure 100 millimetres, pulse soft, and artery easily obliterated. Improved under 12 treatments, current of 150 milliampères, and eventually was able to resume her duties as before.

Effleuvation.—Here the high-tension "brush" discharge is applied locally by means of a special electrode. This is a rosette of metallic points attached by a rubber-covered wire to one end of the resonator, the resonator being a coil of thick copper wire in which the tension of the current is extremely high, so high that an abundant shower of two-inch sparks is given off from the rosette. Beyond the sparks the discharge (or effleuve) extends for four or five inches as a flame-like band which in the dark is seen to be violet in colour and is made up of large quantities of violet and ultra-violet rays. It causes a sensation like a rain of warm sand,

a tingling in the limb treated, and minute fibrillary contractions of the muscles. Its chief value is in painful neuritic affections, and the larger number of patients one has to treat are sufferers from neuritis. We have here a condition of subacute or chronic inflammation of a tissue, the nerve, usually fairly deeply situated. By effleuvation we are able to modify this condition and to produce vascular changes in the nerve leading to the excretion of effete materials which may be irritating it; at the same time we reduce its hyperæsthetic condition. Most cases of rheumatic or gouty neuritis, the latter especially, are cured with more or less rapidity according to their chronicity.

During the last few years I have had sent to me many neuritic cases, principally brachial neuritis; all had previously been for longer or shorter periods on drug treatment without benefit, and a fair percentage of these were rapidly cured by effleuvation. Of eight cases of brachial neuritis treated during the past year four discontinued treatment (one after one application, three after two applications) for various reasons, and so did not give the remedy fair trial, but the remaining four were absolutely cured in from six to ten treatments. Practically in all these four cases the history of the effects of the "brush" discharge treatment was the same; after the first application there was definite slight relief—this was more marked after the second; after the fourth or fifth the pain was negligible, and the patient considered himself or herself well after the sixth or seventh.

CASE 5.—The patient, a man, aged 60 years, had pain in the neighbourhood of an old united dorsal angular curvature spreading along the intercostal nerves on either side; it appeared in all probability due to some fibroid-tissue contraction about those nerves. Treatment, effleuve to area of pain, 19 applications of 20 minutes, removed pain altogether.

After the *first* application of the effleuve, the immediate effect is often abolition of pain; this is due to "inhibition." After a variable number of hours this "inhibition" effect passes off, and, as a result of vascular and other changes set up in the nerve, the pain returns often rather acutely, and is worse for five or six hours. It is well to warn the patient of this in order that he may not be discouraged. By the next day, however, the pain in the limb or part is, as a rule, decidedly better than it was before the first treatment. This initial increase of pain does not occur after the second or later treatments.

There is a point of interest about the effleuve application, as I have said, in that it consists of a very large amount of violet and ultra-violet rays. These latter are believed to have a marked good effect in treatment of skin eruptions which have a microbic origin, and it is quite a usual thing to see an area, treated for neuritis by the effleuve, rapidly clear itself of an eruption, like acne, while the untreated part remains unaffected.

Sciatic pain, if it is neuritic and not referred pain, is often quite rapidly cured in two or three treatments, especially if its onset is recent. Cases of myalgia, so-called, such as the common stiff-neck, are usually abolished, as far as pain is concerned, almost at once. A woman, with sudden stiff-neck, only able slowly to turn her head with much pain, in 15 minutes could move it in all directions easily, and there was only a little stiffness but no pain on the following day.

In skin affections, where there is inflammation of a chronic type, we can alter this by effleuvation, we can diminish local blood-supply to inflammatory patches in eczema, erythema, &c., while stimulating the cells to increased activity, at the same time diminishing the hyperæsthesia and the itching. In pruritus the effleuve I have found of great value. A case in point: A patient with intolerable itching of the legs which had kept him awake most of each night for some weeks. There was a patch of dry eczema of long duration on the right arm, but the legs themselves were free from eruption. He had tried every conceivable remedy without much effect. I was sceptical of producing any good result, but gave ten minutes application of effleuve over each of the legs, which were then itching violently. The irritation was abolished there and then, and it had not returned some days afterwards.

The application of the high-tension current by metal electrodes to the anus in anal fissure, hæmorrhoids, and pruritus ani has been found of marked benefit both to alleviate and to cure. Old-standing varicose ulcers treated by the effleuve lose their thickened edges and develop a granulating surface, healing rapidly. Prostatic hypertrophy is said to be diminished; I have no experience of this, but one can understand that it is likely to be so if one bears in mind the so-called local decongestive action. I need not continue because, although high frequency has been tried, and apparently with benefit, in many other affections, it has been used very empirically and without any definite relation to a physiological result to be sought for.

I conclude by reiterating this. Experiments on animals and plants, observations on human beings, *not* founded on the individual experimentees' own statements, show that there are *four* marked effects of electric energy produced, uncomplicated by chemical effects, by high-frequency currents: (1) Increased cell activity, increased metabolism; (2) return of a locally inflamed tissue to its normal; (3) either general vascular dilatation or contraction, according to the particular method used; and (4) "inhibition," diminished sensory or motor excitability. So that where one or more of these effects is or are desired and where the remaining effects are not prejudicial, or can be very much diminished or abolished, there high-frequency treatment may be of real value, and for these reasons has a prospect of considerable therapeutic use in the future.

Brighton.

A CASE OF MULTIPLE INTRACRANIAL TUMOURS WITH INVOLVEMENT OF BOTH AUDITORY NERVES.

BY GEORGE NIXON BIGGS, M.B., B.S. DURH.,

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THE patient presented himself at the out-patient department of the Seamen's Hospital, Greenwich, on Nov. 11th, 1908, complaining of deafness of ten months' duration in both ears, the condition being most marked on the right side. There was no tinnitus, but there had been persistent right-sided headache for ten months, and for the last five months the patient had had attacks of vertigo. There was no sickness and no paracusis Willisii was present. On examination of the ears both membranes were found to be slightly indrawn and the cone of light was just broken at the periphery. With Siegle's speculum the movements of the membranes and mallei were found to be normal. The Eustachian tubes on catheterisation were found to be normal. Nothing unusual was found in the nose or naso-pharynx. Nystagmus was present, the movements being equal in both directions. Both pupils reacted to light and accommodation, and double optic neuritis was present. There was no facial paralysis and no incoördination was noticed on rapid rotation of the hands. On walking the patient swayed laterally and the feet were kept far apart; there were no stamping and dragging. On standing erect with feet together and eyes closed he swayed from side to side. He had met with an injury though the falling of a bucket on the right parietal region five months previously, and a scar was present on the parietal eminence. There was no history or any sign of syphilis. On testing the hearing the following results were obtained:—

RIGHT.	TESTS.	LEFT.
—	Weber.	Deflected to left.
On mastoid.	Acoumeter.	Contact.
0	Voice.	Four feet.
0	Whisper.	0
Negative.	Rinné C.	Negative.
Negative.	Rinné C^2.	Positive.
– 30 seconds.	C. mastoid.	– 25 seconds.
Positive.	Gellé.	Positive.
	AIR CONDUCTION.	
Not heard.	*3C 16*	Not heard.
	2C 32	"
	1C 64	"
	C 128	Perception.
	C^1 256	Very much diminished
	C^2 512	" "
	C^3 1024	" "
	C^4 2048	" "

As the patient was obviously suffering from an intracranial tumour and there was almost complete nerve deafness on the right side, whereas on the left side it was not nearly so advanced, I sent the case into the hospital as either a

tumour of the right auditory nerve or of the anterior part of the cerebellum pressing forward on the auditory nerve. The patient was admitted under the care of Dr. S. Russell Wells.

His state on admission may be summarised as follows. The hand-grasps were found to be equal and good. A slight lateral tremor of the hands on extension was present. Coördination movements were good. The knee-jerks were exaggerated. The elbow reflexes were fairly good. The plantar reflex was rather slow, but on the whole there was flexion. No ankle clonus; no nodes on tibiæ. No apparent diminution of sensation; no tenderness of the calves of the legs. There was no incontinence. No sign of disease was found in the chest or in the abdomen. Mr. R. E. Bickerton, who kindly examined the patient's eyes, reported as follows: "Nystagmus is present, there is no paralysis of any of the extra-ocular muscles, convergence good. R.V., 6/9. L., 6/9. Both fields of vision contracted. The right pupil is slightly larger than the left, and both are dilated. Optic neuritis is well marked in both and there is a hæmorrhage above the left disc. The right optic neuritis looks of longer standing than the left, but the left appears to be increasing; there is much exudation above both discs. The right is seen with spher. + 3·5, left with + 3; there is more swelling of the right disc than of the left." On Nov. 16th there is the following note: "The palate is peculiarly insensitive, and the left side moves better than the right. There is perhaps slight weakness of the right orbicularis palpebrarum muscle. Face muscles the same on both sides. Fifth, no alteration on either side. On the right parietal region just above and behind the ear there is a slightly tender spot." Mr. Laurie H. McGavin, who saw the case in consultation with Dr. Russell Wells, agreed with the diagnosis and an operation was decided upon.

On Nov. 17th an operation was performed by Mr. McGavin. Chloroform having been administered, a large flap was turned down from the right occipital and cerebellar region, the top of the incision being about half an inch above the superior curved line; there was considerable bleeding from an emissary vein close to the mastoid. A trephine was placed over the cerebellar region and a piece of bone was removed. The dura mater bulged and there was no pulsation visible. The bone was removed with forceps until the greater part of the cerebellar area up to the middle line had been cut away, while above it was carried well up beyond the lateral sinus, so that the difference of tenseness of the dura mater above and below the tentorium, which was very striking, was seen. No tumours could be felt. The flap was replaced and the wound was dressed in the usual way. The patient stood the operation very well.

On Nov. 19th Mr. McGavin reopened the wound and the dura mater over the cerebellar area was removed. In doing this the lateral sinus was entered close to the middle line and the hæmorrhage was only stopped after the application of forceps. The cerebellum bulged extensively into the wound, but no tumour could be felt or seen. The patient lost a considerable amount of blood and a saline had to be administered per rectum. The wound was sutured and dressed, the forceps being left *in situ*, and the patient was sent back to bed. On the 20th salines, adrenalin, and calcium chloride were administered every four hours. The pulse was stronger, 112. The patient had been very restless and had tried to extract the forceps. On the 22nd Mr. McGavin, under chloroform, removed the forceps and plugging, but the hæmorrhage was so severe that they had to be replaced. The wound was dressed and was tightly bandaged. The patient became weaker but quieter, and the pulse was less rapid. On the evening of the 23rd the temperature went up to 102° F. and he became unconscious. The temperature continued to rise to 104°, and he died at 2.30 A.M. on the 24th with rapid obstructed breathing.

At the post-mortem examination a tumour was found on the right side which completely involved the auditory nerve and which extended right into the internal auditory meatus; the tumour was of about the size of a small cherry. On the left side a tumour of about the size of a chestnut was present which was pressing on the anterior part of the cerebellum, but the eighth nerve on this side was only slightly involved and its fibres could be seen stretched out over the tumour. A third tumour was present on the falx cerebri.

This case is one of very great interest, especially as the largest tumour was on the left side—that is, on the side on which the deafness was least marked. This is accounted for by the fact that the nerve had almost escaped on this side, whereas on the right side, where the deafness was almost complete, there was only a small tumour, but the nerve on this side was very extensively involved. The possibility of a second tumour on the left side never occurred to me, as I considered that the nerve deafness on that side was due purely to the increased intracranial tension which was evidently very great in this case. I think in this class of case careful testing of the ears before and after lumbar puncture would be of great value, as if only due to increased tension one might expect some improvement on the unaffected side, although should the condition on both sides remain the same, as it would have done in this case, then the question would arise as to whether there was a tumour on each side and whether the tension had been so great that the nerve had been permanently affected, and in the absence of any other symptoms pointing to a second tumour I am afraid the latter explanation in the present state of our knowledge would have to be accepted.

I am very much indebted to Mr. McGavin and Dr. Russell Wells for their great kindness in allowing me to publish this case, and to Mr. G. E. O. Williams and Mr. S. J. A. Beale for their very excellent notes of the case.

Harley-street, W.

A NEW METHOD FOR ATTEMPTING TO SECURE SPHINCTERIC CONTROL AFTER COLOSTOMY.

BY CHARLES RYALL, F.R.C.S. ENG.,
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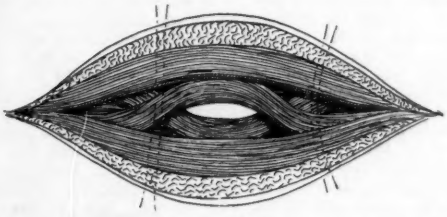
THE lack of sphincteric control is a great drawback to those who have to submit to a permanent colostomy. Many operations have been devised and carried out in order to get over this difficulty. Some of these have been found faulty and others are too complicated. The rectus abdominis is generally a well-developed muscle and remains fairly so in the majority of cases, until advanced emaciation is reached. Taking advantage of this fact, Howse performed colotomy by splitting the rectus vertically, and von Hacker carried out a similar procedure by splitting the fibres vertically and laterally and bringing the bowel through this oblique opening. This was performed with the hope of producing sphincteric control. The Maydl-Reclus operation of inguinal colotomy, where the layers of muscle were split and not divided, was an improvement on these as far as sphincteric control was concerned. All these operations were faulty, and this was in a great measure due to the spur operation being carried out and the difficulty of compressing and controlling the bulky spur. Since then Schinzinger, Braun, Weir, and others have dispensed with the spur by dividing the bowel, closing and dropping the lower segment into the abdomen, and trying to gain some sphincteric control over the upper segment by various operations more or less complicated. It is undoubtedly



easier to control the upper segment alone than to attempt to do so with a spur. Recently Arbuthnot Lane has drawn attention to the advantage of drawing the upper segment through the rectus in those cases where the lower segment is either removed or else closed and dropped back into the abdomen. The rectus is a well-developed muscle and enables a good deal of control to be kept over a colostomy where the fibres are split vertically, but full advantage has not been taken of the value of this muscle as a means of making an artificial sphincter.

The method which I have resorted to appears to me to be

original and is worthy of a trial. The rectus is split vertically and the sigmoid is drawn out and divided at a convenient point. The lower segment is closed and replaced in the abdomen. The upper segment is made less bulky by removing the appendices epiploicæ and freeing it of mesenteric fat, but without in any way interfering with its blood-supply. The artificial sphincter is then made in the following manner. A loop of muscle fibres is separated from the posterior aspect of the rectus on either side of the wound. Each loop is then drawn over to the opposite side of the wound, so that one loop overlaps the other. The overlapping loops thus form a ring and through this the bowel segment is drawn. Sutures are then inserted to keep the muscle fibres together above and below where the bowel comes through. Anchoring stitches are inserted through the skin and muscle inside to keep the bowel in position. The wound is then closed above and below the bowel and the cut edges of the latter are sutured to the skin. A double sphincter is thus formed consisting of longitudinal and circular fibres. The longitudinal fibres are those of the anterior portion of the rectus and the circular fibres are formed by the loops from the posterior part of the rectus. This operation can be modified by making double loops on each side and making them overlap one another alternately. A similar operation can be, and has been, carried out through the external oblique, and likewise can be done wherever the bowel is brought through muscle. A somewhat similar operation can also be performed for gastrostomy and appendicostomy.

Harley-street, W.

AN UNUSUAL CASE OF EXTRA-DURAL (PERI-SINUS) ABSCESS OF OTITIC ORIGIN AND ITS RELATION TO MELANCHOLIC STUPOR.

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ON Feb. 1st, 1908, I was summoned to see a woman of some 50 years of age, complaining of intense pain referred to the left ear, radiating over that side of the head, and of two or three days' duration. Since December, 1907, she had been under the care of mental physicians for melancholic stupor and had never had, to her own knowledge or to that of her family, any previous aural trouble. As a result of my examination a diagnosis of acute diffuse external otitis, probably following furunculosis, was made and the walls of the external canal were thoroughly incised. Before incision there was no visible discharge and no history of one, nor was there any constitutional disturbance, such as rise of temperature, &c. I saw her again in a week's time and the first thing that struck one was the marked improvement in her mental symptoms. Locally the pain had all disappeared and there was no tenderness, but there existed a copious discharge of pus. The walls of the external canal now admitted the introduction of an aural speculum, which disclosed to view a small polypoid granulation springing from the tympanum and filling the lumen of the canal, which was abnormally small. For some weeks the aural condition remained the same in spite of careful treatment, and the question of further operative interference then arose. The intensity of the otorrhœa suggested that more than the area of the tympanic cavity was involved and that the mastoid antrum and cells were affected; still, having regard to the short history of the attack, the complete subsidence of all acute symptoms, the alleged lack of previous trouble in the ear, and also to the absence of any other symptoms, I decided that conservative methods should be given a trial. Accordingly, on March 24th, under chloroform anæsthesia, I removed the tympanic polypus. The effect of this procedure was to increase the amount of discharge, which became so markedly out of proportion to the containing space of the middle ear that it was evident that carious processes were present in some other portion of the temporal bone. I therefore advised the performance of the radical mastoid operation. At this point it will be convenient to mention that the patient's mental symptoms had rapidly improved since the date of the first incision, and at the end of May, 1908, she was pronounced cured by her mental physicians.

On June 23rd I performed the radical mastoid operation which disclosed an interesting state of affairs. On the posterior wall of the osseous external meatus, situated about the centre of its long axis, was discovered the opening of a sinus The orifice of this sinus was about as large as the head of a good-sized pin, and upon tracing it backwards was found to lead through mastoid cells to the sigmoid groove. From this latter region about 1½ drachms of pus were evacuated, and the lateral sinus, itself normal, thoroughly exposed and cleansed. All cario-necrotic débris was removed from the antrum and cells which were thrown into one cavity by removal of "the bridge." There were no signs of caries of any portion of the labyrinthine capsule. The operation was completed in the usual fashion and an uneventful recovery under the care of her own medical attendant followed.

On August 1st I again saw the patient. The scar of the retro-auricular incision was hardly noticeable and the antro-tympanic cavity was lined with white shining epithelium, with the exception of a couple of small granulating patches posteriorly. On Oct. 2nd her own medical attendant examined the ear, and he wrote informing me that there was total absence of discharge, that the cavity was completely lined with epithelium, and that the patient's condition, both physical and mental, was excellent. I have just recently had news from him to the same effect.

There are many points of interest in this case, but the chief and overshadowing one seems to me to lie in the apparent relationship as cause and effect between the abscess and the mental symptoms of melancholia. A brief recapitulation of her mental attack will now be of service. The patient has had during her life several "nervous breakdowns." The earliest symptoms of definite melancholia were noticed in October, 1907, and consisted of depression and loss of sleep. These were followed by actual hallucinations, and late in December she was placed under the care of mental physicians. The diagnosis was that of melancholic stupor. On Jan. 17th, 1908, she became restless and agitated, and made many complaints of her physical condition for which there were no grounds. These symptoms became more marked until I first saw her on Feb. 1st, 1908, incised the walls of the external canal, and so established free drainage from the sinus in the osseous external meatus. From that date she quickly and steadily progressed to recovery, and late in May, 1908, was pronounced cured as regards the melancholia.

These are the definite facts of the case, and their interpretation is rather a matter for the mental physician than for an otologist. The local lesion may have been merely a concurrent event with the mental, but the sequence of cause and effect seems to me so striking as to justify the recording of the case. Here we have a lady with a certain amount of instability of the central nervous system described as "highly strung." Cario-necrotic processes of long standing are present in the temporal bone. An extra-dural abscess forms in the posterior fossa of the skull and melancholic symptoms occur. Then an acute exacerbation of the chronic mastoiditis takes place, the abscess tracks forwards, bursts through the posterior wall of the osseous external meatus, and sets up an external otitis. Drainage is established by incision, tension relieved, and the mental symptoms rapidly clear up.

A brief and necessarily imperfect reference to the literature of the subject discovers the following facts. Bianchi, translated by MacDonald in his standard text-book on "Psychiatry," sums up the whole situation when he says that "the pathological anatomy of melancholia is uncertain." Bernard Hollander[1] has collected about 50 cases, consisting of traumatic, inflammatory, and other lesions of the parietal area, and concludes from evidence adduced that a certain relation exists between the central area of the parietal lobe and melancholic states of mind. Two of his collected cases resemble my own, inasmuch as the melancholia was caused by brain abscess, the site of which, however, in both cases was the parietal lobe. Turner[2] demonstrated alterations of various degrees in the nerve cells and deduced arguments in support of the view that they were due to toxic impregnation of the nerve elements.

In my own case the site of the possible causative lesion differs from any I have found recorded. While others have

[1] Journal of Mental Science, 1901.
[2] Brit. Med. Jour., vol. ii., 1901.

discovered the parietal area to be at fault, in this instance the cerebellar region appeared to furnish the *fons et origo mali*. The explanation, however, must be left to those learned in mental physic, my own object having been accomplished in recording facts as I have observed them. *Ars medica tota in observationibus.*

Manchester.

A CASE OF ABSCESS OF THE PANCREAS.[1]

BY SETON S. PRINGLE, M.B. DUB., F.R.C.S. IREL.,
SURGEON TO MERCER'S HOSPITAL, DUBLIN.

THE subject of inflammatory disease of the pancreas has of late years excited great interest among not only surgeons but also among experimental and chemical pathologists, and as it is only by a careful study of the conditions present in a great number of cases that a true symptom-complex of this very interesting disease can be arrived at, I think that all cases met with should be reported, be the outcome successful or unsuccessful. It is only by the use of the knowledge thus gained that we can hope to arrive at a satisfactory method of treatment. The following is a short description of my case with the post-mortem findings, as it unfortunately belongs to the category of unsuccessful cases, and I regret that space will not permit me to discuss the etiology and treatment in general.

The patient, a man, aged 46 years, was admitted to Mercer's Hospital on June 26th, 1908, complaining of severe abdominal pain and gave the following account of himself. For the last 20 years he had been a very heavy drinker and for the past 12 months he had vomited almost every morning, and as a rule his breakfast had consisted of a glass of whisky. Otherwise he had always been healthy. On June 15th the patient was seized with severe colicky pains in the left abdomen, chiefly in the region of the umbilicus; there was also some tenderness in the upper abdomen, but he said that the abdominal wall was quite soft though slightly distended. As his bowels had not moved for several days he took a purgative and was very considerably better on the following day, the 16th. From this until the 21st of the month he suffered constant pain in the abdomen but not of a severe character; the bowels remained constipated. On the 21st (i.e., the seventh day of the illness) he noticed that the pain had settled in the right side of the upper abdomen between the umbilicus and costal margin and that the abdominal wall was rigid. Diarrhœa also set in on that day and had persisted. The motions were yellow in colour and of a semi-fluid, pasty character. On the following days the pain gradually grew worse, but he was able to attend to his business until June 26th (twelfth day of the illness), when he was suddenly seized with acute pain and went immediately to the hospital, whither he was able to walk. He had vomited occasionally since the attack began, but at no time was it a marked feature and had not occurred for the last few days.

On my arrival at the hospital about an hour after the onset of the acute pain I found the patient lying on his back with his legs drawn up, sweating profusely. His face was flushed and anxious; his respirations were rapid, 30 a minute, and entirely thoracic; he evidently found it difficult to talk on account of the abdominal pain, and spoke in a jerky manner. His temperature was 98° F., his pulse was 100, and his tongue was dry and dirty; there was no jaundice. I found his abdomen distended and the whole abdominal wall absolutely rigid. He pointed to the right epigastrium as the seat of the pain, which also radiated down to the right iliac fossa and was apparently very severe. There was considerable tenderness in the umbilical and epigastric regions; percussion revealed a dull note over the upper two-thirds of the abdomen, the dulness extending into the flanks. I could not demonstrate the presence of free fluid in the abdominal cavity. As there was evidently peritonitis present I decided to operate at once, although a definite diagnosis as to the primary lesion was impossible. I suggested the possibility of a chronic duodenal ulcer which had perforated into a mass of adhesions on the 15th and that now the infection had spread through the limiting adhesions and was causing the acute peritonitis.

[1] Abstract from a paper on Abscess of the Pancreas read before the Surgical Section of the Royal Academy of Medicine in Ireland on Jan. 8th, 1909.

Operation.—As soon as the muscles relaxed under the influence of the anæsthetic I could feel a more or less rounded mass occupying the whole of the upper abdomen, the centre of the mass lying an inch or so above the umbilicus. After the usual preparations I opened the abdomen by a four-inch incision in the mid-line above the umbilicus. I then immediately saw that the tumour which I had palpated consisted of the pyloric part of stomach, duodenum, transverse colon, and some coils of small intestine all matted together, while the great omentum was turned up over the mass thus formed and was adherent to the under surface of the liver. The diagnosis also at once became evident, as typical patches of fat necrosis could be seen dotted over the great omentum, and I thus knew that I was dealing with a case of acute pancreatitis with probably abscess formation. There was a small quantity of blood-stained fluid in the peritoneal cavity. The great omentum was easily separated from the liver and turned down and I then saw a quantity of fresh fibrin gluing a coil of small intestine to the lower margin of the transverse colon. On separating the adherent coils at this point I opened directly into a large cavity full of brownish grey odourless pus streaked with blood. I at once plugged this opening with gauze without allowing any soiling of the general peritoneal cavity to take place and then sutured the edges of the parietal peritoneum to the coils of intestine around the opening into the abscess which was thus made to empty directly into the abdominal wall. The rest of the wound in the parietes was then sutured except at the upper angle, through which I inserted a wick of gauze leading down to the neighbourhood of the foramen of Winslow, where I had noticed a quantity of fresh fibrin. I then removed the plug from the opening into the abscess and substituted a large drainage tube, applied a voluminous dressing, and got the patient back to bed.

Progress of the case.—The patient rallied well after the operation, and next morning he was free from pain with a normal temperature and pulse of only 112. There was a free discharge of the grumous material from the tube, the distension was less, and his general appearance very good. There had been no vomiting, and he took fluid nourishment and stimulants well, so that altogether I was rather pleased with his condition. On the third day the condition continued good, but as there had been no movement of the bowels I ordered him that night a dose of castor oil. The next day he had nine semi-fluid pasty motions of a yellow colour. On the fifth day he vomited once a brownish fluid and was distinctly weaker. On the sixth he vomited several times and a hiccough also developed, so that I ordered his stomach to be washed out. From this time till his death on the twelfth day after operation the vomiting and hiccough continued. The latter was particularly irritating and proved uncontrollable, although his stomach was frequently washed out, and many drugs were tried. He gradually lost strength and was unconscious for some hours before death.

The character of the discharge changed completely in a few days after operation, and by the fifth day a great quantity of an almost clear viscid fluid was being poured forth. This secretion digested the abdominal wall round the wound, causing the latter to open to a large extent; this discharge continued to the end. There was a trace of albumin in the urine on the day of admission, but at no time could sugar be detected; a marked Cammidge "C reaction" was, however, obtained on the third day after operation. The course of the fever was irregular until the eighth day after operation, rising at times to 102°, and then remained normal till death. The pulse was as high as 150 on the sixth day and then gradually fell to the neighbourhood of 120 on the day of his death, the twelfth day after operation.

Post-mortem examination.—Unfortunately, permission for a full necropsy could not be obtained, and a hurried examination had to be made through the operation wound. On enlarging the opening through which the drainage tube had led into the lesser sac it was found that the head and body of the pancreas were represented by several dirty grey sloughs, while completely separated from these lay the tail of the gland. This was easily removed, but in doing so a second abscess cavity lying in the left loin was evidently opened into, from which escaped several ounces of brown, grumous material similar to that evacuated at the operation. No trace of the pancreatic duct could be discovered extending from the tail to the duodenum. There were no gallstones present and no evident cholangitis. The stomach and

duodenum showed marked evidence of catarrhal inflammation. There was no diffuse peritonitis. The specimens removed were handed to Dr. W. G. Harvey, who reports as follows: "The specimens consist of (*a*) a portion of the pancreas about four inches long, apparently the tail of that organ. This presents a fairly normal appearance to the naked eye, but on cutting into it a considerable amount of congestion becomes apparent, and many small areas of fat necrosis are seen scattered through it. (*b*) Several large pieces of slough resembling 'wash leather.' The surface of the end of the piece of pancreas which would lie towards the right in the body is rough and rather irregular in outline and evidently represents the line of separation of the slough from the surviving pancreas. Microscopically sections of the former portion show, on the whole, a remarkably healthy appearance. The glandular tissue stains well, but there is much congestion, a very considerable increase of connective tissue, and a marked thickening of the vessels. Sections through the extreme right end of this part, i.e., through the 'line of demarcation' show on the surface a narrow zone of necrosis, while under this the connective tissue appears more affected than the epithelial, strands of necrotic fibrous tissue passing some distance in between healthy gland substance. Here and there in these sections are seen localised areas of necrosis of the gland sharply marked off from the healthy tissue. The ducts show a severe catarrh. The fat in parts appears normally as clear spaces, but in parts many fat cells contain crystalline and amorphous deposits. Sections of the sloughs show a deep pigmentation of such few glandular elements as are still recognisable. The remainder is a homogeneous necrotic mass traversed by a few pink lines of connective tissue such as one sees in caseating gummata."

In a review of the literature Mayo Robson[2] has been able to find reports up to 1907 of only 14 operations for abscess of the pancreas, with five deaths. Since then, however, Brewer[3] reports two successful cases of drainage for circumscribed pancreatic abscess. I regret that in this case I did not make a counter opening in the back at the left costo-vertebral angle and so drain the collection of pus which was discovered post mortem, although I do not see that a favourable outcome could have been expected considering the extent of the gangrene and the fact that all connexion between the surviving tail of the pancreas and the duodenum had been severed.

Dublin.

FOUR CASES OF CHRONIC MIDDLE-EAR SUPPURATION WITH INVOLVEMENT OF THE LABYRINTH.

BY MACLEOD YEARSLEY, F.R.C.S. ENG.,

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THE following four cases, which have occurred in my practice at the Royal Ear Hospital during the past 18 months, are all of considerable interest.

CASE 1.—The patient, aged 13 years, a scholar at the London County Council Residential Deaf School for Girls, had been deaf from double middle-ear suppuration, following scarlet fever at the age of three and a half years. The right ear showed a large perforation with a polypus protruding. On the left side the membrane was almost entirely destroyed and pus was coming from the attic. On Jan. 23rd, 1908, the radical mastoid operation was performed on the left ear. There was caries of the long process of the incus, and of the malleus only the head remained. The attic and aditus were filled by granulations. The polypus in the right ear was removed at the same time. The patient did well until the 25th, when the evening temperature rose to 100·2° F., falling the following morning to 98°; in the evening it rose to 100·6°, reaching normal on Jan. 27th, when the left ear was first dressed. On the 30th she was better in every way. That afternoon the radical mastoid operation was performed on the right side. No ossicles were found, the antrum was full of pus and granulations, and the tegmen antri was carious. On the 31st she was drowsy and vomited most of the day, the temperature rising until 6 P.M., when it reached 103·8°. There was a definite rigor at 2 P.M. She lay in a curled-up position, the knee-jerks were absent, but there was no rigidity and Kernig's sign was absent. There was distinct right lateral nystagmus. The dressings were removed and a drainage-tube was put into the antrum through the external meatus. Calomel, gr. v., and antipyrin, gr. x., were given. At 10 A.M. on Feb. 1st the wound was reopened and more bone removed. The dura mater was bulging and non-pulsatile; on opening, about half an ounce of clear fluid escaped. The brain was explored without result and the wound was redressed. The temperature fell to normal and by 4.30 P.M. the patient was more comfortable. Right lateral nystagmus persisted. She became worse at 6 P.M.; the temperature was 101·6°, the pulse was 96, and the respirations were 24, reaching 104·2°, 100, and 24 respectively at 8 P.M., when she had a rigor. She was sponged and given gr. ¼ of morphia at 9.30 P.M. She became very noisy, talking and singing nursery rhymes all night. At 1 A.M. she began to pass everything under her. At 10.30 A.M. on Feb. 2nd the temperature was 101°, the pulse 96, and the respirations 24; she was again anæsthetised and a small cerebral hernia through the tegmen antri was removed. The brain was again explored and, during this exploration, the lateral ventricle was tapped, about two ounces of very foul, coffee-coloured fluid being evacuated. She died at 6 P.M. on Feb. 3rd, the temperature reaching normal and the pulse 88 after the last operation and rising to 103·4° and 146 just before death.

In deference to the wishes of the parent, the head only was examined by Mr. W. H. Bowen. Suppurative meningitis, due to infection spreading through the labyrinth, was found. There was an erosion through the superior semicircular canal with a corresponding perforation of the dura mater. In his report Mr. Bowen stated that "without a thorough clearing out of all the internal ear the disease could not have all been removed and even for this to be successful the operation should have been done months before." The stapes was intact and there were no signs of any lesion of the labyrinth at the time of operation. The lateral sinus and posterior fossa were intact.

CASE 2.—The patient, a boy, aged nine years, a scholar at the London County Council Deaf Centre at Somerford-street, Bethnal Green, suffered from discharge following measles in infancy. The left ear showed complete destruction of the tympanic membrane, the upper part of the tympanum being occupied by cholesteatomata, the lower part by granulations. On the right side the whole tympanum was full of granulations. Both ears discharged very foul sanious pus. The tonsils were hypertrophied and there was a large mass of adenoids. The boy had only vowel hearing on both sides. There was no nystagmus and Romberg's sign was absent. Coördinated movements were performed without any hesitation. On Feb. 6th, 1908, the right radical mastoid operation was performed. On clearing the antrum, aditus, and tympanum of much foul pus, débris, and granulations, it was found that there was a fistula into the external semicircular canal, the stapes was absent, and the margin of the fenestra ovalis was carious. The vestibule was opened by enlarging the oval window inferiorly, and the cavity was swabbed out with hydrogen peroxide and then with pure formalin. The operation was completed in the usual way, packing being done *vid* the meatus.

The boy made an uninterrupted recovery, but had twitchings of the facial muscles lasting about two days after the operation. A left radical mastoid operation was performed on Feb. 9th, and a few days later both tonsils were enucleated and a large mass of adenoids removed. Functional testing on Jan. 21st, 1909, gave the following result: The bell was not heard by either ear; the open vowel "a" was heard on the left side when spoken very loudly close to the ear; Weber's test was lateralised to the left, and to the C 128 fork some bone conduction, but not reliably estimable, was present; that fork on the right mastoid was referred to the left. By air conduction no fork was heard by either ear.

CASE 3.—The patient, a female, aged 22 years, sent by Dr. C. C. Gibbes, had suffered from double otorrhœa on and off since measles in childhood. Since July, 1907, the discharge from the right ear had been very offensive and sanious. About the middle of September, 1907, she had an attack which was described as "inflammation of the brain"; she

[2] Mayo Robson and Cammidge: The Pancreas, its Surgery and Pathology, 1907.

[3] Brewer: Surgery, Gynæcology, and Obstetrics, September, 1907.

was attending a meeting and fell forward suddenly from her chair and was carried home unconscious. Until December she was very ill, but no clear details of her symptoms were obtainable, save that vertigo, vomiting, and tinnitus "like being in a railway station" were prominent. The only information as to the form of her vertigo, was that in March, 1907, she had a sudden attack which caused her to fall towards the right. When seen on April 29th, 1908, she was obviously ill. The left ear was discharging slightly, the lower part of the membrane was destroyed, and the malleus hung free. The right meatus was full of very foul pus, stained with blood, and on cleansing large polypoidal masses blocked the inner end. She heard well on the left side, but was apparently quite deaf on the right. She was, however, too ill to be tested. There was no nystagmus, the temperature was 98° F., and the pulse 100. She was at once admitted, and next morning the temperature and pulse were 97° and 80.

On April 30th a radical mastoid operation was performed. On reaching the antrum very offensive curdy pus was found, and, as the opening was being enlarged, it escaped as if it were being pumped out. On removing the bridge and clearing the antrum and attic of much granulation tissue it was found that the inner antral and tympanic walls were occupied by a bed of soft granulation tissue, across which the facial nerve lay exposed. No ossicles, either malleus, incus, or stapes, were found. Loose sequestra were felt and removed, great care being exercised to prevent injuring the nerve. Two large ones and two small ones came away easily. The former comprised a part of the vestibule, with the openings of the semicircular canals, and a much eroded portion of the promontory. Under the latter was found a small piece of the modiolus and lamina spiralis ossea. The condition of the patient being such as to render it inadvisable to complete the operation, the wound was lightly packed from the incision, and a few days later a flap was fashioned, the incision sutured, and the operation finished in the usual way. The patient has made an uninterrupted recovery, but as the exposed facial nerve became surrounded with organising tissue, facial paralysis appeared and gradually became worse.

CASE 4.—A girl, aged 12 years, was sent to me on Jan. 13th, 1909, by Mr. H. L. E. Wilks of Salisbury, with a note to say she had been under his care at the Salisbury Infirmary "with an acute mastoid one year ago." He had operated and removed some carious bone and established a communication with the middle-ear. The acute symptoms had subsided, but there had lately been a purulent discharge from the external meatus. I have, I regret to say, been unable to obtain any further information as to the original condition of the child from Mr. Wilks. On examination there was found a profuse, offensive, watery discharge from the right ear, the meatus of which was stenosed. The membrane was destroyed except Shrapnell's portion, the inner tympanic wall covered with fine granulations. There was tenderness over the antrum. The temperature was 100° F. and the pulse was 102. No nystagmus could be elicited by the caloric test and no history of giddiness could be obtained.

On Jan. 15th, 1909, a radical mastoid operation was performed, the incision passing through the scar left by the former operation. No sign of the latter could be found in the bone, save a small pit just behind the spine of Henle. Both antrum and aditus were large and full of granulations. The head of the malleus was found, but both incus and stapes had disappeared. A fistula over the prominence of the external semicircular canal, large enough to admit easily a probe, was seen, and the latter instrument, given a suitable curve, passed into the tympanum through the vacant oval window. I treated the condition as described in Case 2—viz., by chiselling away the outer vestibular wall below the oval window and the use of peroxide of hydrogen followed by formalin. The case has progressed without any unfavourable symptoms. On functional testing (Feb. 15th, 1909) she apparently heard well in the right (operated) ear, but on using Bárány's noise-producing apparatus to the left ear it was clearly demonstrated that this hearing was entirely supposititious.

Each of these cases is of considerable interest. In the first there were no symptoms specially leading one to suspect the presence of any grave labyrinthine condition on the right side, and had that ear been opened up first it is questionable from the condition found post mortem whether she could have been saved. There were, however, no guiding symptoms to lead to a decision as to which was the worse ear. It is extremely probable that the removal of the polypus lead to a lighting-up of the labyrinthine condition and consequent meningeal infection. Several years ago I had under my care a woman, aged between 40 and 50 years, in whom both ears were filled with granulations. As the mastoid operation was refused absolutely I curetted both ears (the only operation to which she and her friends would consent) and she succumbed to suppurative meningitis three days later. The infection was found to have reached the meninges *viâ* one labyrinth. This case was probably similar to that of Case 1. I would point out the difficulty of obtaining reliable information from deaf-mutes or their relatives which would lead to a suspicion of the true condition. The lesion found in Case 1—viz., erosion of the superior semicircular canal—is decidedly uncommon. I regret that no tests were made as to the condition of the labyrinthine function, but at the time I saw this case I was unacquainted with the work of Bárány and others.

The history of Case 3 showed that this patient was attacked by acute labyrinthine suppuration during chronic purulent middle-ear disease, and it is interesting as showing to what extent such a condition may pass without causing intracranial complications. There are several cases on record in which complete necrosis of the labyrinth has taken place, notably that by Hugh E. Jones[1] of Liverpool. The ensuing facial paralysis was regrettable but unavoidable under the circumstances; it did not appear until the nerve became pressed upon by the new-formed cicatricial tissue. I have proposed a grafting operation to the patient, but this she refuses.

Cases 2 and 4 are very similar. In both there was erosion of the external semicircular canal, with loss of the stapes; in neither was the condition suspected before operation was undertaken. The method followed—viz., opening the vestibule by removing the outer wall below the fenestra ovalis (to which the term "inferior vestibulotomy" has been applied)—appears to me to be the best way of dealing with such cases; it ensures drainage at the lowest part of the vestibule and is in full communication with the canals (as shown by the bubbling of the peroxide of hydrogen through the erosion in the external canal), and is well away from the facial nerve. There is no need, in my opinion, to enlarge the fistula into the canal (so-called "superior vestibulotomy"), as the lower opening gives all the necessary drainage and to do so would endanger the nerve. It is possible that both these cases might have done perfectly well had the vestibule been left untouched, but considering the usual surroundings of the individual patients it was unwise to take the risk.

Case 4 further opens up an interesting point—that of hearing when the stapes has been lost or the labyrinth damaged. Owing to the relatively badly developed sense of sound direction in man, coupled possibly with hearing by bone conduction, such patients often appear to hear quite well with the damaged ear, even when the good ear is carefully sealed. In such cases Bárány's noise-producing apparatus becomes a valuable instrument and is the only method by which reliable evidence as to the true hearing can be obtained.

Harley-street, W.

[1] Transactions of the Otological Society of Great Britain, vol. iv., p. 5.

UNIVERSITY OF SHEFFIELD.—The council of the University have appointed Mr. Arthur M. Connell, F.R.C.S. Edin., to the Lectureship in Practical Surgery, in succession to Mr. George Wilkinson.

THE EDUCATIONAL BENEFITS OF TRAVEL.—The Orient Line of Mail Steamers to Australia has offered to grant annually free first-class return passages to a limited number of graduates from the Universities of Sydney, Melbourne, and Adelaide who are desirous to visit Europe to continue their studies. The disposition of these privileges has been left entirely in the discretion of the councils of the respective universities, with the suggestion that, as the offer is intended to multiply the opportunities of education by travel, the privilege be preferentially conferred on graduates who are debarred from studying in Europe by reason of the expense involved, rather than on the holders of any particular university distinction.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION.

Red Degeneration of a Uterine Fibroid.—Unusual Solid Tumour of the Ovary.—Fœtal Chondro-dystrophia.—Primary Chorion-epithelioma of the Ovary.—Rudimentary Uterus Didelphys.

A MEETING of this section was held on June 10th, Dr. HERBERT R. SPENCER, the President, being in the chair.

A short communication was read by Mr. J. BLAND-SUTTON on Red Degeneration of a Uterine Fibroid associated with staphylococcus pyogenes aureus infection.

Mr. G. F. DARWALL SMITH read a short communication on an Unusual Solid Tumour of the Ovary. The patient from whom the tumour was removed was a multiparous woman, aged 36 years. She was found to have a rounded, solid tumour in the right posterior quarter of the pelvis of the size of a man's fist. This was removed, and on examination the tissue of the ovary could be seen to be stretched as a capsule over the substance of the tumour proper. The cut surface of the tumour looked like an ovarian fibroma. On microscopical examination, scattered about in the fibrous stroma were seen strands of cells resembling glandular epithelium. Some of these cells showed degenerative changes. The diagnosis seemed to lie between endothelioma and adenofibroma.—Dr. W. S. A. GRIFFITH mentioned that he had removed a similar tumour of the right ovary with similar microscopical characters. The tumour showed clinically no signs of malignancy.

A short communication by Dr. KEDARNATH DAS on Fœtal Chondro-dystrophia as a cause of brow presentation and dystocia was read, and notes of two cases of this condition were given.

Dr. J. S. FAIRBAIRN read a paper on Primary Chorion-epithelioma of the Ovary. The paper was based on the case of a woman who had had four pregnancies, the last in February, 1905, when the placenta was removed by hand and the convalescence was protracted. For some months before admission to St. Thomas's Hospital there had been slight, but continuous, uterine hæmorrhage, and for about six weeks abdominal pain, chiefly on the right side. A tender swelling in the abdomen had been noticed by the patient for about three weeks and was the reason for her seeking advice. This was thought on examination to be an ovarian cyst with torsion of the pedicle, but at the operation on Jan. 3rd, 1907, it was found to be a hæmorrhagic tumour of the left ovary with extensive adhesions, but no twisting of the pedicle. It was removed and also the right ovary, which was cystic and involved in adhesions. The patient showed no signs of recurrence two years after operation. Other cases of primary chorion-epithelioma in the ovary were discussed. Seven collected by Pick, and others by Michel, Schmaus, and Kleinhans were mentioned, but particular attention was directed to two from Doederlein's klinik which occurred in multiparæ, and appeared to be very similar to the one described. Three possible explanations of the origin of chorion-epithelioma primary in the ovary offer themselves: (1) It may arise, as in Pick's cases and as in chorion-epithelioma of the testicle, from teratomatous elements; (2) it may arise from a preceding ovarian pregnancy; and (3) it may be due to transportation of villi from a preceding pregnancy, molar or otherwise. The present case and Doederlein's two were considered as in a class by themselves and as differing from Pick's in that his series included many younger patients (ages 9, 16, 17, 21, 24, 30, and 36), that all except one were nulliparæ, and that there was more definite evidence of a teratomatous origin in the mixed nature of the tumour elements and in the extreme malignancy of the growths. Any further discussion as to the origin of such primary growths must be purely speculative, but as suggesting a possible origin from transported villi attention was directed to the fact that in two of the three cases specially considered it was found necessary to remove the placenta manually in the labour immediately preceding the illness.

Dr. W. BLAIR BELL read a paper on a case of Rudimentary Uterus Didelphys with ectopia of each uterine body in an inguinal hernia sac, with some remarks on the development of the female genital organs. The patient was a young woman, aged 20 years, who had had a double inguinal hernia all her life. Lately there had been attacks of abdominal pain, which caused her to seek advice. The patient was found to be well developed and intelligent. She had never suffered from monthly molimina. The external genitals were normal in appearance and covered with hair. There was total absence of the vagina, but a circular fringe indicated the formation of a hymen. Per rectum no pelvic genital organs could be detected. At the operation a central subumbilical incision was first made in order to investigate the state of affairs. There was a smooth and uninterrupted vesico-rectal pouch. Above the true pelvis on either side there was a large hernial orifice. Protruding down the right aperture was the Fallopian tube and ovary; on the left side only the fimbriated extremity of the tube was visible. An incision was next made over the left inguinal canal, and the hernial sac—together with the left uterine body, which was firmly incorporated with it, and the Fallopian tube and ovary—was removed, and a radical cure effected. On the right side the hernial sac and the uterine body were separated from the Fallopian tube and ovary and removed, a radical cure of the hernia being then carried out. The patient made an uninterrupted recovery. On histological examination the left ovary was found to be functional. The conditions of uterus didelphys and hernia of the uterus were discussed and their relative importance considered. The rarity of actual ectopia of uterine bodies, such as was found in the case described, was mentioned, the only other similar cases on record being those of Roux and Werth. Finally, the "descent" and development of the genital organs was considered in so far as the malformation found in this and other cases seen and mentioned by Dr. Bell were concerned.

OPHTHALMOLOGICAL SOCIETY.

Congenital Displacement of Lenses.—Congenital Opacities of Lenses.—Retinal Disease with Massive Exudation and Arterio-venous Communication.—Epithelial Filament simulating a Threadworm in Anterior Chamber of the Eye.—Report of International Committee on Unification of Notation of Visual Acuity and of Meridians of Astigmatism.—Exhibition of Cases.

A MEETING of this society was held on June 10th, Mr. W. H. H. JESSOP being in the chair.

Mr. P. E. H. ADAMS read two papers, the first on a family with Congenital Displacement of Lenses. The series consisted of a mother and seven out of her nine children who suffered from this condition, but no other instance could be found in the family. In three of the cases the lenses were displaced downwards instead of the more usual displacement upwards, while in the eldest boy the dislocation was complete, thus leaving the pupil clear of the lens. The two members of the family who were unaffected had perfectly normal eyes. The second paper was on a family with Congenital Opacities of Lenses. In this family the great-grandfathers, grandmother, father, and four of his children (out of five), as well as the father's sister, showed the peculiar opacities of the lens known as stellar cataract. Posteriorly there were from three to eight primary rays and numerous secondary ones, while some of them showed Y-shaped markings on the anterior surface as well. The opacities slowly increased throughout life, especially in the front of the lens, while the posterior markings were broader and less defined.

Dr. A. HILL GRIFFITH and Mr. A. W. ORMOND communicated a paper entitled, "A Case of Retinal Disease with Massive Exudation and Arterio-venous Communication." The patient was a female, aged 31 years. The left eye had been removed for secondary glaucoma by Dr. Griffith ten years ago. The fundus of the remaining eye showed very tortuous and distended retinal vessels, with varicosity of several of them and a red blurred optic disc. In the extreme periphery of the fundus, deep to the retinal vessels, was a whitish mass, the limits of which could not be seen. Issuing from the anterior border was a large vein and running to it an artery somewhat similar in size and colour. The

changes in the fundus were probably all due to vascular disease. The interest in the case was furthered by the fact that the other eye of the patient was removed for secondary glaucoma simulating an intra-ocular growth, and on examination it proved to be a case of extensive sub-retinal exudation with retinal detachment and an old organising hæmorrhage, but no growth. The patient's sister also lost an eye from a similar cause and the same condition was found on pathological examination.

Dr. GEORGE MACKAY reported a very unusual appearance, an Epithelial Filament simulating a Threadworm in the Anterior Chamber of the Eye of a girl, aged seven years. The child had always enjoyed good health, had no special illness, had never suffered from worms, and had not complained much about the eye. The filament had been first noticed when she was eight months old. No independent movement had ever been detected in it, but the parents were under the impression that it was slowly increasing in size. The eye was occasionally a little irritable, with a tendency to lacrymation, and a trace of ciliary injection. The tension was normal, the media otherwise transparent, and the fundus healthy. The pupil responded to light, though less mobile below than above. At the periphery of the iris, close to the anterior chamber angle, between the 5 and 6 o'clock meridians, a buffy-grey filament about a millimetre in diameter emerged between the fibres of the iris, ascended in close relation to the posterior aspect of the cornea for 3 or 4 millimetres, then bent backwards towards the lower border of the pupil, and crossing the vertical meridian of the anterior chamber appeared to rest lightly in contact with the sphincter surface of the iris. Thereafter it bent downwards once more, following the plane of the iris nearly in the 7 o'clock meridian. The structure terminated in a slightly bulbous free extremity which did not re-enter the iris nor extend to the angle of the anterior chamber. The arched filament had thus a slight spiral twist from before backwards. The refraction of the eyes was about emmetropic. The vision of the right eye $\frac{6}{9}$ fairly, and the left $\frac{6}{6}$. The child was put under chloroform, and through an incision made at the corneo-scleral junction, a little to the nasal side of the filament, the foreign body was successfully removed, though breaking into two pieces on account of its brittle structure. From the pathological examination made by Dr. Theodore Shennan of Edinburgh and Mr. A. E. Shipley of Cambridge no confirmation was obtained of the presence of a parasite. Microscopic sections showed that the filament was mainly composed of stratified epithelium, with a little loose connective tissue and some melanine pigment. Discussion was invited as to its probable origin—e.g., in a congenital displacement of part of the epithelium from the anterior surface of the iris or a capsulo-pupillary vestige.

Mr. JESSOP gave a report of the International Committee on the Unification of the Notation of Visual Acuity and of the Meridians of Astigmatism. The committee, after consideration, came to the following conclusions:—1. That the meridians of astigmatism should be measured and represented as the observer looked at the patient. 2. That the axes should be measured and represented in the lower semi-circle of the trial frame. The numbering of the axes should start from the middle line of the face in each eye, and proceed downwards and temporalwards. The zero would therefore lie at the nasal end of the semicircle and 180° at the temporal end; 90° would be below and midway between these points. The committee also agreed that for international test type numbers should be used. Landolt's ring was also thought to be a suitable object. The unit of measure was an angle of 1 minute, and the figures were to be constructed on this unit. The types were to be constructed as regards size on arithmetical progression, and the standard distance at which they were to be seen should be 5 metres. The source of light was to be diffuse daylight, if possible, opposite the types, and not laterally.

The following cases were shown:—

Dr. A. FREELAND FERGUS: A case operated upon for Paralytic Ptosis by his method of resection.

Mr. J. HERBERT FISHER: An Unusual Form of Cataracts (Bilateral) in a girl.

Mr. JESSOP: A case of Bilateral Ptosis with complete Ophthalmoplegia Externa.

Mr. W. M. BERGIN: A case with a Unilateral Swelling.

Mr. C. S. BLAIR: A case of Pemphigus of the Conjunctiva.

Mr. HERBERT BELL: A case of Unusual Elastic Adhesion between the Iris and the Cornea.

Mr. ARNOLD LAWSON: (1) A case of Double Iridectomy for Congenital Glaucoma by the method of Lagrange; and (2) a case of Congenital Glaucoma treated by Langrange's iridectomy.—This case was discussed by Dr. WEEKS (Philadelphia), Mr. G. T. BROOKSBANK JAMES, Mr. E. TREACHER COLLINS, Mr. ODILLO MAHER, and Mr. F. R. CROSS.

MEDICO-LEGAL SOCIETY.—A meeting of this society was held on June 22nd, Dr. James Scott being in the chair.—Mr. H. Wippell Gadd read a paper on the Poisons and Pharmacy Act, 1908, in Relation to Public Health and Safety. The speaker criticised the Act in detail, drawing particular attention to Section 2, which empowers persons other than qualified chemists and medical men to sell certain poisons. Mr. Gadd showed how inconsistently the Act had been interpreted by the local authorities empowered to grant licences to unqualified applicants.—Dr. S. B. Atkinson, Dr. Hubert Biss, Mr. R. A. Robinson, Mr. W. C. Williams, and Dr. Scott joined in the discussion.—Mr. Roland Burrows, LL.D., read a paper on the Law of Exhumation. The law relating to the disposition of the dead was, he said, most unsatisfactory. A curious duality ran through it which alone tended to cause confusion. Exhumation was so unusual that comparatively few people had any knowledge of the law relating to it. The motives actuating civilised nations in disposing of their dead—religion, reverence, and public health—were not necessarily consistent. All of them had had influence on the law. Nowadays public health appeared to be the dominating influence. Until 750 A.D., when Archbishop Cuthbert introduced the custom of churchyard burial, burial in or near a church was only accorded to persons of special sanctity. Even then it was not until after the Reformation that the exaction of burial fees by clergymen ceased to be regarded as an offence against the law of God. The custom of churchyard burial, however, though general, was never a binding rule. Neither the canon nor the common law required the body to be placed in a coffin; nor was there any rule as to the material of which the coffin was to be constructed. The duty of burial as imposed by the law was to convey the body decently covered and in a reverent manner to a place of sepulture and, in like manner, to bury it. That duty rested on the person having control over the body. *Prima facie*, it was the executor or administrator; but the relatives, and even the householder under whose roof the body lay, incurred the obligation. The only excuse was poverty. The duty, however, was overridden by the paramount duty not to do anything to avoid an inquest or to conceal a crime. The deceased had no power to regulate the place or manner of his burial except that he might forbid cremation and had certain powers to devote his body for anatomical study under the Anatomy Act, 1835. Exhumation might lawfully take place under a faculty and a licence other than under the law of inquests. In five case it could take place: (1) the investigation of the cause of death of the person buried; (2) when the land was devoted to other uses; (3) under the Burial Acts, for the protection of the public health; (4) to give effect to the wishes of the deceased or relatives as to the place of burial; and (5) incidentally, for purposes not directly relating to the cause of death. Mr. Burrows supported his paper with numerous decided cases, and also referred to instances where opposition had been made to exhumation orders. In conclusion, he urged that the law on the subject stood in urgent need of reform.—Discussion followed, in which Lord Russell, Dr. Atkinson, and Dr. Scott spoke.

THE NEW VACCINATION LAW IN BURMA.—The Burma Vaccination Law Amendment, 1909 (Burma Act 1 of 1909), was brought into force on May 24th, 1909. Section 9 of the Act, which gives power to require persons on board vessels on arrival at the port of Rangoon (who have travelled on board such vessel for the purpose of coming to Burma to work as labourers) to be inspected, and if found unprotected to be vaccinated, will until further notice be put into force in respect of vessels arriving from Calcutta only.

Reviews and Notices of Books.

Report on the Prevention of Malaria in Mauritius. By RONALD ROSS, C.B., F.R.S., D.Sc., LL.D., &c., Professor of Tropical Medicine in the University of Liverpool and the Liverpool School of Tropical Medicine. London: J. & A. Churchill. 1908. Pp. 202, with 25 photographs and a map. Price 5*s.* net.

AT the request of the Governor of Mauritius, conveyed through His Majesty's Secretary of State for the Colonies, Professor Ronald Ross visited Mauritius in 1907 with a view to advise measures for the prevention of malaria, the disease having shown of late years a tendency to increase, no fewer than 5827 deaths having been ascribed to that cause during 1906. He remained three months in the island collecting information and investigating the local conditions associated with the malady. This report, as might have been expected, is a most valuable and exhaustive work, treating the whole subject from all points of view. Before discussing the circumstances of malaria in Mauritius the author sets out in simple terms, mainly for the benefit of non-medical readers, a summary of modern views respecting the malady. There is also a historical account of the behaviour of the disease in Mauritius, and from it we learn that Professor Ross is of opinion that in all likelihood malaria was not endemic in the colony before 1865. The particular mosquito responsible for transmitting the malady in Mauritius is the Pyretophorus costalis, which was probably brought to the island by some ship. With the importation of Indian coolies to labour in the sugar plantations infected persons arrived in considerable numbers. So that with local conditions favouring the multiplication of the mosquito, and with a supply of infected persons whose blood contained the parasites of the disease, malaria rapidly extended in the colony, giving rise in 1866 and 1867 to the terrible epidemic which carried off in 1866 alone no less than one-fifth of the entire population, leading some persons to take the view that the disease in question was not malarial fever at all, but plague or cholera, so great was its virulence. Professor Ross in his recent inquiry adopted as his index of malarial prevalence the number of children under 16 years suffering from enlarged spleen; and he points out that malaria will not remain in a locality unless the carrying agent, the anophelines, are numerous, unless there are enough infected persons to infect the carriers, and if the insects are prevented from biting human beings.

Keeping this in view, Professor Ross summarises preventive measures under the following headings: anopheline reduction, case reduction, and isolation. As regards anopheline reduction, he points out the value of drainage in removing surface waters, which favour the breeding of the insects. In respect of case reduction he urges the continued use of quinine, which removes, or, at least, diminishes, the number of available parasites in the blood. And as regards isolation, or protection from mosquito bites, he discusses the protection to be derived from culicifuges, such as oil of lavender applied to the skin; the use of mosquito nets, especially at night; the wire-gauze screening of windows and verandahs where practicable; and the covering up of the exposed skin by veils and gloves. He places the greatest importance upon reduction of mosquitoes, which can be attained either by major works of drainage of marshes and clearing out of overgrown watercourses, or by minor works which comprise the systematic searching out of smaller breeding grounds of the mosquitoes, the filling up of pools or hollows, and general attention to the sanitary surroundings of the people. He quotes instances where malaria preventive measures have been successfully carried out, as, for example, at Ismailia, the Federated Malay States, Hong-Kong, and the Panama Canal zone. Finally, he recommends that in Mauritius a periodical spleen census of children in schools and on estates should be taken to note the number with enlargement of that organ; treatment by quinine of all children suffering from enlarged spleen; continuous house-to-house distribution of quinine when necessary; house protection by nets and wire-gauze screens where possible; continuous efforts for reduction of mosquitoes by major or minor works; and the establishment of a suitable organisation to carry out all the malaria preventive measures which shall be directed by a responsible chief officer who should present to the local government an annual report on malaria in the colony. The cost of these measures is estimated at £9000 per annum.

A number of appendices and addenda are placed at the end of the report, which is well worth the study of all who wish to acquaint themselves with the most modern methods of combating malaria.

Inborn Errors of Metabolism. By ARCHIBALD E. GARROD, D.M., M.A. Oxon. London: Henry Frowde and Hodder and Stoughton. 1909. Pp. 168. Price 3*s.* 6*d.* net.

THIS work is in substance the Croonian lectures delivered before the Royal College of Physicians of London in June, 1908, and published in THE LANCET shortly afterwards. They are now arranged in chapters with new matter added. It is said that "in any phenomenon of nature there is something of the marvellous;" this work shows that this is true and that it is manifest in the metabolic processes in living beings. Behind an apparently superficial uniformity exists a diversity no less real than that which is sometimes so obvious in structural anomalies, only this diversity being chemical and not morphological is much more difficult to examine. The inborn errors of metabolism specially dealt with are albinism, alkaptonuria, cystinuria, and pentosuria. The recent advances in chemical physiology have made possible the successful investigation of these obscure metabolic phenomena. We now know that each animal manufactures its own specific proteins and that special enzymes exist for special purposes. That great medium for the excretion of metabolic products—the urine—contains many substances which rank as abnormal constituents, which, however, are present in traces as by-products of metabolism; even such substances as cadaverin and hæmatoporphyrin have been discovered to be normally present in it. The author leaves aside that conspicuous group of maladies classed as "diseases of metabolism"—e.g., gout, obesity, and diabetes. Of those he deals with some are, and all of them probably are, present from birth, and, with one exception, bring in their train no serious morbid effects, do not call for treatment, and are little influenced by any therapeutic measure. One is tempted to regard them as four "metabolic sports"—the chemical analogues of structural malformations. That albinism is congenital and persists through life and is certainly harmless is well known. Alkaptonuria persists through life and is in the great majority inborn, though it may sometimes appear in disease; the evidence of cystinuria being congenital is more difficult to obtain; and as to pentosuria, discovered only in 1892, its inclusion is justified on other grounds, and evidence is accumulating of its harmlessness. Of all the four, Dr. Garrod's experience leads him to the belief that cystinuria is the least rare, and the only one of the four which can be classed as actually injurious, but even these effects are secondary. Another feature of this group is the liability for each of them to occur in several members of a family, most often in collaterals of the same generation born of normal

parents, though in this respect they do not stand alone. There is some evidence of a special liability of the Jewish race to pentosuria.

Albinism has for its essential phenomenon the absence of pigments of the melanin group, but there is more than this, for it has been found that intravascular injections of nucleo-proteins do not produce such intravascular clotting in the subjects of albinism as they cause in normally pigmented subjects. The Norway hare, when in its winter albino coat, behaves as an albino when injected with nucleo-protein.

The urine of an alkaptonuric—a very rare anomaly—seldom shows anything abnormal when freshly passed, but quickly darkens in contact with air, a phenomenon which is associated with the absorption of oxygen. Our knowledge of this anomaly only dates from 1858. Some alkaptonurics in later life develop a peculiar inky blackness of the cartilaginous structures—called by Virchow ochronosis—a condition that may also be produced by the prolonged absorption of carbolic acid. The excretion which is the essential feature of alkaptonuria is homogentisic acid with the empirical formula $C_8H_8O_4$, and the error of metabolism to which its presence is due is a failure to deal with the aromatic fractions of proteins, both of the food and tissues, in the ordinary way.

The chapter on cystinuria is both full and suggestive, and in it there is given an excellent account of the sulphur metabolism of the body. Like other inborn chemical errors, cystinuria occurs with greater frequency in males than in females. Its persistence and frequent transmission from generation to generation in a family are striking characteristics. The study of cystinuria leads the author to give an account of the chemistry of proteins and the amines, which are now known to play such an important part in the constitution of the protein molecule. Both cystinuria and alkaptonuria may be classed as an arrest rather than as a perversion of metabolism.

It was only in 1887 that arabinose was found to be a pentose—formerly it was placed in the hexose group—and not till 1892 was a pentose found in the urine, and most of the recorded cases have been met with in Germany. It is also a very rare anomaly and is not necessarily associated with any morbid symptoms, and there is a growing opinion that it is itself harmless and calls for no treatment. In a considerable number of cases there have been symptoms of neurasthenia.

The whole work is a thoughtful exposition of chemical problems of great complexity manifesting themselves in the sphere of the physician. To the elucidation of these problems the author brings all the knowledge of a thorough master of this branch of organic chemistry, as well as the observant and critical powers of a scientific physician.

Clinical Diagnosis: a Text-book of Clinical Microscopy and Clinical Chemistry for Medical Students, Laboratory Workers, and Practitioners of Medicine. By CHARLES PHILLIPS EMERSON, A.B., M.D., late Resident Physician, the Johns Hopkins Hospital. Second Edition. London and Philadelphia: J. B. Lippincott Company. Pp. 686. Price 21*s.* net.

DURING the past 20 years many excellent text-books have been written on "clinical diagnosis"—that is to say, on the clinical examination of the blood, the urine, and the gastric contents. There has naturally been a tendency for those observers working in the clinical laboratories to regard microscopical and chemical examinations apart from the actual patients from whom the various specimens were derived; in other words, only to deal with disease *in vitro*. To avoid the errors to which such a course is liable Dr. Emerson has made a point of considering work done in the laboratory from the clinical rather than from the purely laboratory point of view. That he has succeeded in writing a useful manual is proved by the fact that, although the work first appeared in 1906, a second edition has already been called for. In preparing this edition the efficiency of the volume as a practical work for medical practitioners and students has been raised in every possible way. Fully one-half the work has been re-written, resulting in a considerable increase in the number of pages. This enlargement has permitted the incorporation of much new matter throughout, including the bacteriology of the sputum and urine. This will add materially to the usefulness of the volume as a working handbook.

The first subject considered is the examination of the sputum, and here the microscopical characters of the morbid constituents are particularly well and minutely described. The various forms in which the epithelial cells of the alveoli may be met with are fully discussed, especial mention being made of the myelin globules and "drops," and of the "Herzfehlerzellen." The last-named is the term given to the cells filled with a golden yellow pigment; they only possess diagnostic importance when they occur in large numbers and over a long period of time. The granules are sometimes small, but often large. They have a translucent appearance, are not opaque, and certain cells seem to be diffusely stained. In chronic passive congestion, especially that due to mitral disease, these cells may give a gross colour to the sputum, the entire mass being of a rusty colour.

An excellent account is given of the clinical examination of the urine. The remarks on albuminuria are especially worthy of attention. The author discusses at length the occurrence of "albuminuria without definite renal lesion." With Spiegler's reagent it is hard to find an individual whose urine is really free from albumin. This being the case, there is no distinct line between physiological and pathological albuminuria except that of amount. Dr. Emerson defines "albuminuria" in these circumstances as "a condition in which serum albumin may be detected by the tests accepted in common use as standards, and the cases with small amounts of albumin which pass unnoticed by these tests and require special technique are not included." He quotes Hofmeister as saying that if Heller's test shows no ring in three minutes the urine is to be considered albumin-free. We endorse these remarks. The presence of minute quantities of albumin, recognisable only by reagents which are not employed in ordinary clinical work, corresponds to the presence of sugar in equally negligible amount as demonstrated by such a delicate test as safranin. Strange to say, this substance is not mentioned by Dr. Emerson as a test for glucose, although very accurate quantitative estimations may be made by its employment.

In discussing functional albuminuria, its occurrence amongst athletes is mentioned. Macfarland found this condition present in practically every football player whom he examined, but the albuminuria lasted for the most part only three or four hours. The same constituent is found in the urine of men taking part in other forms of athletics, bicycle riders and mountain climbers, those persons who exercise severely the leg and thigh muscles, especially to a degree beyond that to which they are accustomed; later, they are able to stand an equal amount of exercise without the albumin making its appearance. Dr. Emerson maintains that it is "only a question of limit; practically everyone can if he will produce albuminuria if he only over-exerts himself sufficiently." The occurrence of albuminuria following upon violent emotion or an unusually heavy proteid meal is also discussed, and the difficulties which may arise in assigning a physiological explanation are largely cleared away.

The chapter on the examination of the blood maintains the high standard shown in the rest of the work. The varieties of the white blood cells are described at length, and the characteristic blood changes found in the primary and secondary anæmias receive full attention. The technique necessary to obtain the opsonic index is given, but the full significance of the results from the point of view of diagnosis and as an aid to treatment is not explained according to the latest researches. Doubtless this defect will be remedied in a future edition.

The book contains a large number of excellent illustrations, the coloured plates being particularly good. We can cordially recommend the work to those of our readers who desire a trustworthy text-book on clinical diagnosis.

Common Disorders and Diseases of Childhood. By GEORGE FREDERICK STILL, M.A., M.D. Cantab., F.R.C.P. Lond., Professor of Diseases of Children, King's College, London, &c. London: Henry Frowde and Hodder and Stoughton. 1909. Pp. 731. Price 15*s.* net.

IN the preface to this volume the author modestly tells us that it has no claim to vie with the many text-books which deal with the whole subject of disease in childhood, and is not intended as a systematic work. Nevertheless, we are inclined to think that those who are interested in this subject will find it in many respects more valuable than an ordinary text-book. It is devoted to just those affections which are likely to be encountered in practice and treats of them in a practical way. The material is mainly drawn from Dr. Still's own large experience, and is therefore particularly valuable as being first-hand information, not a mere *réchauffé* of the statements of others, as text-books too often are. The subjects dealt with are too numerous to mention in detail. The first six chapters are devoted to the different aspects of infant feeding, and the seventh and eighth to the allied field of rickets and scurvy. A chapter on hypertrophy of the pylorus in infants might seem to be a little outside the scope of the work, as it can hardly be called a common condition; it is, however, of considerable importance. Digestive disorders of various kinds form the subject of Chapters IX. to XVII., followed by a discussion of the fever of obscure origin which is so often met with in children and which has in many cases a gastro-intestinal origin. The three next chapters deal with intestinal worms, with jaundice in children, and with the different affections called by different observers "croup." Diseases of the respiratory organs (bronchitis, broncho-pneumonia, pneumonia proper, and empyema) occupy the next four chapters, followed by three on the different forms of tuberculosis. Dr. Still believes that tuberculous infection is usually brought about by inhalation in children in whom the respiratory tract is specially vulnerable. To rheumatism and its allies, chorea and heart disease, four chapters are devoted, and two to nephritis and urinary disorders. The next 13 chapters are taken up with nervous disorders of all kinds, functional and organic, mental and bodily. On all of these Dr. Still's authority is well recognised. The concluding chapter is on congenital syphilis. Why it is placed here is not quite apparent, but it is none the less interesting for its postponement.

We cordially commend the book to all practitioners, and cannot praise it more highly than by saying that it is all that we should expect from its accomplished writer.

LIBRARY TABLE.

Diseases of the Digestive Canal (Œsophagus, Stomach, Intestines). By Dr. PAUL COHNHEIM, Specialist in Diseases of the Stomach and Intestines in Berlin. From the second German edition. Edited and translated by DUDLEY FULTON, M.D., Lecturer on Medicine, University of Southern California, Los Angeles. Illustrated. London and Philadelphia: J. B. Lippincott Company. 1909. Pp. 373. Price 16*s.* net.—Dr. Cohnheim's little book on diseases of the digestive system well deserved translation into English, being simply and practically written and showing signs of original investigation and personal experience. The translation is on the whole well done. The illustrations have been altered so as to show an earnest young American practitioner palpating a patient in place of the German physician of the original diagrams, and some new pictures have been added without, so far as we can see, adding much to the value of the work. We prefer the *format* of the German edition to that of the English one, as the former is lighter and thinner, with rather larger pages. The price of the translation is also, we believe, considerably higher than that of the original. Those, therefore, who are conversant with the German language will probably prefer the original, while those who are not so will be grateful for the translation.

The Birds of the British Islands. By CHARLES STONHAM, C.M.G., F.R.C.S. Eng., F.Z.S. With illustrations by LILIAN M. MEDLAND. In 20 Parts. London: E. Grant Richards. 1909. Price 7*s.* 6*d.* each part.—Six parts of this interesting serial publication have appeared since our last review, and the standard of excellence both in text and illustration to which we have made previous reference is maintained. The author and the artist continue to work hand in hand to turn out a really authoritative text-book upon British birds. We are selecting for particular notice Volumes XIII. and XIV., the first of which contains the Columbæ and the Gallinæ, nearly all of which birds are so large that their pictures have to undergo a certain amount of compression to go neatly into the page. It is an undoubted drawback to these admirable pictorial representations that they have to be drawn occasionally out of scale, and now and again—as, for example, in the picture of the turtle-dove—we feel that the elegance of the page might well have been sacrificed to give us a life-size representation of the bird, which could, as a matter of fact, have been easily delineated on an available surface of nearly a foot square. The eye, at any rate at first, may fail to accommodate itself to the reduction which the artist has been compelled to suffer, and this will be recognised if we look at the representation of birds familiar in appearance to all of us, whether naturalists or not. The portraits of the pheasant, the partridge, and the grouse have all been reduced, and we have an instinctive feeling that the picture of the quail, which is drawn life-size, is more like its subject.

Mr. Stonham's notes are, as usual, replete with information, and the life-history of some of the birds described is very interesting. We wonder if it is common knowledge that the capercaillie of to-day is an alien bird introduced some 30 or 40 years ago from Sweden when the destruction of the pine forests had led to the extinction of the indigenous breed in the north of England and Scotland. The capercaillie, by the way, is an incontinent bird whose willingness to hybridise with the blackcock and the pheasant might well, we think, be taken advantage of in carrying out experiments in Mendelism, but possibly this has already occurred to practical workers. In the story of Pallas's sand-grouse no explanation is offered of the curious fact that the bird periodically invades us but cannot be proved to breed with us, while it is an interesting question for surmise whether the alteration in agricultural conditions in England will lead to the return among us of the birds which ceased to breed under the conditions prevalent in the palmy days of farming. Afforestation and the increase of pasture might, we suppose, lead to the recovery for our landscapes of many birds which are now no longer seen within our shores, or seen only as rare visitors, but the re-establishment, to take effect, will

have to be in some numbers, for any stray sojourner is almost invariably shot by the first idiot who can hit it. Volume XIV. contains the orders Fulicariæ, under which we find crakes, rails, and coots, and in this volume there are mentioned two beautiful birds which, alas, are no longer to be counted with us—the crane and the great bustard. Cranes, we learn, were fairly common in England up to the sixteenth century, but there is no reference to them in Shakespeare, that learned field naturalist, and some of the allusions in literature are possibly due to confusion with herons. Cranes, we hear from Mr. Stonham, were protected by Act of Parliament at one time, and possibly the Act has never been repealed, but it is long since they have bred in this country. As a rare and occasional visitor the crane is asked to display great self-sacrifice, for the last record of its appearance, on May 23rd, 1908, has the additional note that the bird, a female, was shot and is now preserved in the Grosvenor Museum. A colony of great bustards, for so long the glory of Norfolk, was put down recently very near the spot where the last native pair were killed—namely, on the high heathland near Watton and Swaffham in Norfolk, by Lord Walsingham, whose efforts, however, to preserve the birds proved ineffective.

England is still the country of birds, and we should like to think that our superiority will be maintained, but it is a question whether we deserve it, for the general ignorance of birds and bird-life is great.

The Practice of Medicine. By the late M. CHARTERIS, M.D. Edin., Professor of Materia Medica and Therapeutics, Glasgow University, &c. Ninth edition. Edited by F. J. CHARTERIS, M.D. Glasg., Physician to Out-door Department, Western Infirmary, Glasgow, &c. London: J. and A. Churchill. 1909. Pp. 689. Price 9*s.* 6*d.* net.—A text-book which has attained its ninth edition should be fairly beyond the scope of criticism, and we need only say that, so far as we have been able to judge, the present edition is adequately brought up to date. The editor has been assisted by Dr. A. Grey Banks in the articles on the infectious fevers, but is alone responsible for the rest of the work, which has included much rewriting as well as revision. The book is practically a short text-book of medicine, suitable for students entering for the easier examinations. In many places its brevity makes it scarcely adequate for use without some supplemental reading. It is furnished with an appendix of therapeutical information, prescriptions, posological tables, incompatibles, &c.; also with a glossary of medical terms.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXVIII., No. 5. London: C. F. Clay, Cambridge University Press Warehouse. June 15th, 1909. Price 5*s.* 6*d.*—The contents of this number are: 1. On the Nature of the Fat Contained in the Liver, Kidney, and Heart, Part II., by Percival Hartley, Grocers' Company Research Scholar. Mr. Hartley demonstrated in a prior communication that the fats occurring in the liver, kidney, and heart yield on saponification a mixture of higher fatty acids which is far more complex than the mixture obtained by saponification of the connective-tissue fat. The fatty acids from the former sources have a very high iodine value, and when exposed to the air or when heated undergo changes whereby the iodine value diminishes, and at the same time a portion of the fatty acids is converted into a resinous substance which is insoluble in petroleum ether. In the present communication these fats are further investigated. In the fat of the liver linoleic acid and an acid having the formula $C_{20}H_{32}O_2$ are found. 2. A Mammalian Spinal Preparation, by C. S. Sherrington, University of Liverpool. In the production of this preparation the animal (cat) is deeply anæsthetised, the skin incised and reflected at the level of the axis after the insertion of a cannula into the trachea. A deep incision is made through the musculature behind the atlas, and a strong ligature is passed under the body of the atlas so as to compress the vertebral arteries. A second ligature surrounds the whole of the neck except the trachea, and decapitation is then performed. Hæmorrhage is slight. Artificial respiration is maintained. The skin flaps are brought together with the view of covering the exposed surface of the divided cord. The whole operation occupies about six minutes. The cord is found to be divided a little below the point of the calamus scriptorius. The preparation is well adapted for investigating muscular reflexes, which may be observed for ten hours. 3. A Stable Derivative of Hæmochromogen, by J. A. Milroy, M.A., M.D. Edin., from the Physiological Laboratory, Queen's University, Belfast. In this preparation nickel appears to replace iron. 4. The Carbon Monoxide Capacity of Reduced Acid Hæmatin, by J. A. Milroy, M.A., M.D. Edin., Belfast. 5. The Causes of Periodic or Cheyne-Stokes Breathing, by C. Gordon Douglas, B.M. Oxon., and J. S. Haldane, M.D. Edin., F.R.S., a note upon which paper occurs in another column. 6. The Regulation of Normal Breathing, by C. G. Douglas, B.M., and J. S. Haldane, M.D. Edin., F.R.S. This number also contains the Proceedings of the Physiological Society for March 27th, 1909.

Le Laryngoscopie. Paris: Maloine. Price 75 centimes.—The July number contains an original article by Dr. Texier and Dr. Molinié of Nantes on Foreign Bodies in the Larynges of Children, with a great many illustrative cases. This article, which is very interesting and complete, is followed by one on Aneurysms of the Ascending Aorta and the Transverse Aorta, with the complete Mediastinal Syndrome of Symptoms, by Professor Boinet, and an interesting little paper on the Treatment of Certain Rebellious Nasal Synechiæ, by Dr. Jacques and Dr. Mathieu. It is a very well got up little journal, and this number fully justifies the favourable impression which we formed of its predecessors.

Verhandlungen des Vereins Deutschen Laryngologen. (Proceedings of the German Laryngological Society.) Würzburg: Stube. 1908. Price 2 marks 50 pfening.—At this meeting nine papers were read, the subjects and authors being as follows: Carcinoma of the Hypopharynx, by Dr. Körner; the Employment of Fulguration in Laryngology, by Dr. von Eichhorn; Diseases of the Sphenoidal Sinus in association with Scarlet Fever, by Dr. Killian; a paper on Experiences in Regard to Complications of Disease of the Sphenoidal Sinus, and a paper on the Flow of Saliva through the Nose, by Dr. von Eichen; a paper on Light Therapy in Acute Sphenoidal Sinus Disease, and a paper on a Contribution to Submucous Resection, by Dr. Brünings; a case of Primary Tuberculosis of the Palate, by Dr. Goris; and a case of Primary Syphilitic Infection of the Septum Nasi, by Dr. Neugas.

New Inventions.

INSTRUMENTS FOR GASTRO-ENTEROSTOMY AND CHOLECYSTOSTOMY.

DURING the performance of gastro-enterostomy or intestinal anastomosis it frequently happens that the pouting mucous membrane of the already sutured half of the bowel is apt to be in the way of the needle while the anterior or return half of the mucous membrane is being sutured. To aid in the application of this suture I have had a protector made with ends of different sizes for gastric or intestinal work (Fig. 1). It is applied after the posterior suture line is complete and serves to depress the ridge of mucous membrane, at the same

time affording a smooth surface over which the point of the needle readily glides. It is easily withdrawn before the suture is completed. A three-bladed coaptation forceps (Fig. 2) (originally designed for the coaptation of skin edges) has also proved useful for lifting up in apposition the edges

FIG. 1.

FIG. 2.

FIG. 3.

to be sewn. The gall-stone bowl (Fig. 3) is of assistance in the cleanly performance of cholecystostomy. The apex of the gall-bladder, after having been drawn through a hole in the centre of a sheet of thin rubber, is seized with two pairs of Porrier's forceps which are allowed to hang over the projections on either side of the lip of the bowl, the gall-bladder is opened between them, and its contents readily scooped into the bowl which rests upon the lower part of the abdominal incision. The above instruments have been made for me by Messrs. Down Bros.

HAROLD UPCOTT, F.R.C.S. Eng.,
Hull. Honorary Assistant Surgeon, Hull Royal Infirmary.

EPSOM COLLEGE.

THE annual general meeting of the governors of Epsom College was held at the office, 37, Soho-square, W., on June 25th, under the presidency of Sir HENRY MORRIS, Bart., the treasurer of the College. He was supported by Sir R. Douglas Powell, Bart., Sir Constantine Holman, Mr. J. Paul Bush, C.M.G., Dr. Charles Caldecott, Dr. Charles W. Chapman, Dr. William Collier, Dr. Clement Godson, Dr. F. de Havilland Hall, Mr. H. E. H. Matthews, Mr. John H. Morgan, C.V.O., Rev. E. W. Northey, Dr. Guthrie Rankin, Mr. Clement Locke Smiles, Dr. Frederick Taylor, Mr. W. Bramley Taylor, Dr. J. Roberts Thomson, and Dr. W. Essex Wynter.

The proceedings commenced with the passing of a resolution expressing the cordial congratulations of the meeting on the well-deserved honour of a baronetcy conferred upon Sir Henry Morris by His Majesty the King. This was moved by Sir CONSTANTINE HOLMAN, the late treasurer of the College, seconded by Sir R. DOUGLAS POWELL, and carried by acclamation.

The SECRETARY having read the result of the voting for pensionerships and foundation scholarships, which have already been published in the columns of THE LANCET, the resolution as to the adoption of the report for the past year was moved by the Chairman, who referred to the salient points contained therein, and was carried unanimously. The report stated that although the receipts from subscriptions and donations were slightly lower than in the previous year there was a surplus on the ordinary income and expenditure account of £432 14*s.* 7*d.* A sum of £5498 11*s.* 9*d.* was spent on extending the buildings at Epsom in 1908, of which amount £883 was the balance of the cost of the new lavatory block, and £4614 the expenditure (on account) of the new Markham Skerritt laboratories. In the report for the year 1897 the governors were informed that under the will of the late Dr. Henry Fearnside, of Bournemouth, the residue of his estate would pass to the College for the Endowment Fund after the decease of his widow. Owing to Mrs. Fearnside's death in 1908 the residue would shortly be handed over to the Endowment Fund. The council hoped that friends of the institution would do their best to secure fresh annual subscribers, since death removes annually many who had been staunch supporters of the College from soon after its foundation. If members of the profession who are unable to contribute large amounts would subscribe a guinea, or even half-a-guinea, annually; and if all medical men would plead the cause of the foundation to their well-to-do relatives and friends the present number of 50 pensioners and 50 foundation scholars could be maintained without difficulty. As the total assured income of the College, including the dividends from the Fearnside legacy fund but deducting interest on mortgages, is under £2500 a year, whilst the maintenance of the 50 pensionerships and 50 foundation scholarships requires close upon £7000 annually, a sum of £4500 a year must be obtained from voluntary contributions. In an appeal recently issued by the honorary treasurer attention was drawn to the fact that whilst the names of 39,827 persons are contained in the Medical Register, under 2200 medical practitioners—that is to say, only one-eighteenth of the profession—are annual subscribers to the foundation. Under the will of the late Miss Annie Graham Sewell, one-fifth of the residue of her estate has been left to the College for the purpose of creating pensionerships under the following conditions: "Pensions shall be provided of not less than £20, nor more than £50, each; such pensions shall be called or known as the 'Brodie Sewell Pensions,' and shall be allocated or granted to the objects of the institution or charity, but in selecting pensioners for 'Brodie Sewell Pensions' preference shall always be given to the widows and spinster daughters of medical practitioners." In accordance with the will of the testatrix, the first presentations to these pensionerships will be made by her executors.

The report further pointed out that the new building to provide further class-rooms, better accommodation for teaching science, and a room for the use of the day boys, was opened in March last. The laboratories, which are to be called permanently the "Markham Skerritt Laboratories," have been well equipped, and will afford efficient means of instruction in physics and biology to all boys who require these subjects. After giving careful consideration to a scheme for the provision of further buildings which are urgently needed in view of the rapid growth of the school, the council decided to erect a new gymnasium, new music rooms, and a new workshop, and to provide a central heating plant having sufficient power to heat all the new buildings, together with Granville House, the large school, and the chemical laboratory. These extensions and improvements will probably cost over £8000, but though this sum is large the council feels assured that a consistent and definite scheme of extension is the most economical course that can be followed. That the school is growing in importance and popularity may be seen from the fact that there are 282 boys at present in the College, whereas in the same term five years ago there were only 235 boys. Old Epsomians have raised a subscription for the purpose of erecting a stained-glass window in the College chapel as a memorial to the late Archdeacon Thornton, who was the first headmaster of the College.

The report concluded with the honours of the year, which are as follows:—H. A. Baylis has won an open classical exhibition at Jesus College, Oxford; J. M. L. Bogle an open studentship at the University of Liverpool; G. K. Bowes a junior studentship for science at Christ Church, Oxford; and C. A. Mallam a classical exhibition at Keble College, Oxford. Ten boys have passed the whole or a part of the preliminary scientific examination for the degree of M.B., B.S. of the University of London, 18 have passed the matriculation examination of the same University, 11 have gained the higher certificate of the Oxford and Cambridge Schools Examination Board, and 18 have gained the lower certificate.

The retiring members of the council and the auditors were then reappointed; Dr. de Havilland Hall was elected a vice-president of the College; and various alterations and additions were made to the by-laws of the College.

The meeting closed with a vote of thanks to the chairman.

THE LANCET.

LONDON: SATURDAY, JULY 3, 1909.

Public Health and Social Conditions.

THE President of the Local Government Board has recently issued in a Blue-book[1] of more than one hundred folio pages a collection of statistical memoranda relating to public health and social conditions, presumably for the instruction of the large body of local officers who depend on the Board for authority and guidance in the discharge of their various duties. The graphic representation of statistics is, we believe, a favourite device with Mr. JOHN BURNS, who believes, like ourselves, that such appeals to the eye are particularly arresting and convincing, and we are glad that he has thought proper to summarise in one volume practically all available statistics relating to the work of his important office, and to illustrate them as completely as possible by charts and diagrams, which, although by no means new, are inserted on the authority of the several State departments concerned. The issue of a statistical summary on the present lines constitutes an entirely new departure on the part of the central authority, and we shall be interested to learn how far its authoritative publication is appreciated by the public officials for whose edification it has apparently been designed. The compilation has been entrusted to Mr. C. F. A. HORE of the Local Government Board, and the sections relating to the public health and to pauperism have been produced under the direction of Dr. A. NEWSHOLME and Mr. J. S. DAVY respectively. From an introductory note we learn that the volume is designed to illustrate in a convenient and readily intelligible form the following conditions: (1) the growth of population and the changes in the occupations of the people; (2) the principal facts respecting public health and mortality, together with an account of sanitary administration, central as well as local; (3) the material features of industrial conditions—e.g., the changes of occupation, the rise of wages and the decline in prices of the necessaries of life, the fluctuations in the labour market, and the results of measures for dealing with unemployment; and (4) the subject of Poor-law relief, the decline of pauperism, and its cost in the present as compared with the past. Other sections in the volume deal with the subjects of taxation and the growth of local expenditure for sanitary and other purposes. While each topic is dealt with as succinctly as possible, the endeavour has been made to provide materials for a historical survey of the subject, many of the tables and charts having been carried back over a period of more than a half century. The compilers confess that their work contains little that can claim the merit of originality. Much of the material is derived from reports issued from time to time by Government departments, although not previously available in connected form. To effect such connexion, whilst at the same time restricting the work within reasonable limits, a few only of the most important topics, and those chiefly relating to administrative matters especially bearing upon the work of the recent Poor-law Commission, have been selected for comment.

In the present article our observations will relate almost exclusively to the first two of the sections into which, as we have said, the work is divided, inasmuch as they contain data which are of chief interest to our medical readers. In the first section the principal facts are summarised concerning the growth and distribution of the population of these islands. The actual figures, having been already published in the census reports of the Registrar-General, are omitted here. But it is worthy of remark, as showing the rapid growth of the British population, that within the half-century ended in 1901 the number of persons living showed an increase of more than 50 per cent. It has frequently been stated that the period of maximum increase of the population corresponds to the period of maximum birth-rate, which was in 1871–81. This decade includes the years 1871–75, when, as shown by the decline of unemployment and pauperism, and by the rise in the average rate of wages, the country enjoyed a marked increase of prosperity. In the intercensal period 1881–91 there was a fall in the relative increase of the population, but the more recent decade again shows a recovery. The factors which determine the growth of population are (*a*) the balance between emigration and immigration, and (*b*) the difference between the births and the deaths. It is impossible to determine the extent to which the community gains by immigration, because the returns include foreigners only temporarily resident in this country, while the offspring of aliens born since their arrival here are excluded. It should be noted, however, that ever since the establishment of civil registration the number of births has invariably exceeded the number of deaths, and that the ratio of births to population has for the last three decades been declining. The ratio of deaths has also shown a decrease, although this decrease does not quite balance the fall in the birth-rate. The net result is that the average natural increase of the population—i.e., the balance between natality and mortality—has slightly declined within the last 30 years. In the second section of the work the general subject of public health is dealt with by Dr. NEWSHOLME, who ably discusses, in the first place, the evidence as to the health of the community afforded by the recorded mortality, especially that of infants, the death-rates from the principal diseases, and the mortality in the various industries. Secondly, he considers the development of public health administration, particularly in regard to the measures for general sanitation, for the improvement of unhealthy and overcrowded areas, and for rehousing the displaced inhabitants; and finally, the condition of the public medical service under central and local control. It is matter of common knowledge that recently the general health of the people of this country has very considerably improved; indeed, it would be surprising if it were otherwise, having

[1] Statistical Memoranda and Charts prepared in the Local Government Board relating to Public Health and Social Conditions. Eyre and Spottiswoode, Limited. 5s. 1909.

regard to the enormous sums annually expended in safeguarding the public health. A similar, but hardly equal, improvement has taken place in the health of most other European nations. The Registrar-General has for some years past published returns of mortality for the principal colonial and foreign States, setting forth not only the crude death-rate from all causes in terms of the estimated population at all ages, but, what is more important from a sanitary standpoint, the loss of life due to the more prevalent diseases. Although these returns are interesting and valuable as records of fact, they nevertheless lack that precision which should attach to such records wherever they are regarded as criteria of the degree of health or of longevity of communities placed in comparison. Unfortunately, the colonial and foreign returns published by the Registrar-General of England are not corrected for differences of age and sex constitution of the several populations, and therefore, strictly speaking, they are to that extent untrustworthy. In England and Wales, however, careful correction for this disturbing factor has for many years been made at Somerset House, so that the mortality of the principal cities and other urban areas becomes fairly comparable with that of the rural districts. The latest Blue-book tells us that after correction of this kind there is an average difference of 23 per cent. in the mortality of the urban and rural areas. The greater mortality in urban areas is attributable, among many causes, to the more serious risk of life incidental to certain industrial occupations, to the greater liability to infection and other risks attending the undue aggregation of population, and to the general lowering of health attaching to the insanitary surroundings of populous places. We know that such conditions are remediable by well-directed public action, and it is only just to acknowledge that the recent satisfactory decline in British mortality, especially in that of the more prevalent diseases, is in a large measure due to the sanitary progress of recent years.

The elaborate statistics that accompany this volume furnish striking evidence of the improved condition of public health in this country. The average duration of life has been prolonged, the death-rate has fallen to an unprecedentedly low figure, and diseases such as pulmonary tuberculosis, enteric fever, and small-pox have become far less prevalent. Having regard to his position as medical adviser of the Board, we are prepared to find that Dr. NEWSHOLME has devoted a large portion of his memorandum to a review of public health administration in England and Wales. The story of that administration is one of steady progress. As a result of the great outbreak of cholera which visited this country in 1831 a Royal Commission was appointed, shortly after which year—viz., in 1847—the Towns Improvement Clauses Act was passed, and in the following year the first Public Health Act. Under that enactment a general Board of Health was established, with power to sanction the constitution of local boards of health on petition of the inhabitants concerned. But it was not until 1871 that the organisation of public health authorities was recast and placed on a fairly satisfactory footing. Under the Act of that year the Local Government Board was made the Central Public Health Authority, and was invested with the powers previously possessed by the Privy Council and the Home Office in relation to sanitary authorities. The whole of England and Wales was under that Act divided into urban and rural sanitary districts, but the powers scattered through several Acts were not consolidated into an effective measure until 1875, in which year the Magna Charta of public health obtained a place on the Statute Book, and this still remains the chief instrument for the promotion of public health in all parts of England outside the metropolis. The publication of this latest Blue-book shows in a graphic manner our present position with regard to public health, and proves that Mr. BURNS and his medical adviser are alert to ensure that the steady rate of progress shall be maintained.

A Standard Diet.

FROM time to time our most cherished beliefs receive rude shocks as the advance of knowledge brings to light new and unexpected truths, and it may happen that views which seemed most firmly rooted are exhibited in the guise of mere fragile hypotheses. Not many years ago the average dietetic needs of mankind seemed to have been securely ascertained for all time by the researches of VOIT and others, which formed the basis of definite dogmatic assertions set out in all text-books of physiology. In recent years, however, doubt has been thrown on the correctness of these observations, chiefly by the researches of CHITTENDEN, on the scientific side, and among the popular world similar doubts have been raised as to the wisdom of ordinary methods of feeding by the energetic preaching of that enthusiast, Mr. HORACE FLETCHER, who holds that most of the ills of life may be avoided by prolonged mastication of our food. According to this theory of life a little food is made not only to last a long time but also to go a long way, a very small quantity of fuel being apparently needed by a machine which is stoked in this peculiar manner. Since modern society is not unlike that of ancient Athens in its desire for some new thing, and as health and hygiene are fields in which the follies of persons with a tendency to mental obliquity may be actually dangerous, it is well that the credentials of the new doctrines should be carefully scrutinised. This task has been recently undertaken by Sir JAMES CRICHTON-BROWNE, whose presidential address to the Section of Preventive Medicine at the meeting of the Royal Institute of Public Health in 1908 has now been issued in book form[1] and thus rendered attainable by the world at large. In the course of it he brings forward a large amount of information as to the practical experience which has been gained in different parts of the world and in different circumstances with regard to the minimum quantity of food needed by the human animal for the proper maintenance of its strength and activity. The data furnished are far from supporting the new doctrines, and are indeed very difficult to reconcile therewith.

Exact measurements of dietetic requirements are most easily made in the field of protein metabolism, and it is to this that Sir JAMES CRICHTON-BROWNE'S inquiry is mainly directed. The standard laid down by VOIT demanded 118

[1] Parcimony in Nutrition. By Sir James Crichton-Browne, M.D., LL.D., F.R.S., Lord Chancellor's Visitor in Lunacy, London. London and New York: Funk and Wagnalls Co. 1909. Pp. 111. Price 3s.

grammes of protein food for an average man doing ordinary work, and more recently ATWATER slightly raised this amount, calculating the proper protein ration as 125 grammes. CHITTENDEN, on the other hand, holds as the result of his observations that 60 grammes is adequate for a man of average weight. The ordinary diet of the Japanese is quoted in support of this calculation, as OSHIMA puts their daily intake of protein at just this figure; but Sir JAMES CRICHTON-BROWNE rightly points out that the argument is inconclusive, since the Japanese are a small race and therefore need a quantity of food proportionately less than the European. He even suggests that this smallness of stature may be due to defective supply of food. It is usual to credit the European races with more energy and endurance than the Asiatic, and these qualities are sometimes attributed to the greater protein intake of the former. The vigour and endurance displayed by the Japanese have, however, tended to throw doubt both on the fact and on its explanation, so that a proper understanding of the dietetic habits of this remarkable people is most desirable. It is interesting to note that in the Japanese army during the recent campaign in Manchuria the protein ration supplied was more abundant than had fallen to the lot of any army in the field in previous times. Returning to European experiences, we find that attempts have from time to time been made to cut down the diet of prisoners in gaol to the lowest limit compatible with existence, and thus experiments have been made which afford interesting light on the problem of diet. Some time ago in England ordinary prisoners were kept on a diet containing only 57 grammes of protein, and credible testimony shows that this resulted in a state of semi-starvation; while for convicts on what is termed light labour even 130 grammes proved insufficient. In France a ration containing 94 grammes of protein was found by GAUTIER to be too poor in meat. These observations actually made on a considerable number of subjects are very difficult to reconcile with the views of CHITTENDEN as to the proper protein ration. It must, of course, always be borne in mind that in dealing with proteins we are dealing only with a portion of the whole field of diet, and that probably a larger allowance of carbohydrates and fats may for a time compensate for slight defects of protein constituents in the food. Nevertheless, a certain amount of proteins must be supplied in some form or other, and there is an irreducible minimum below which continuous loss of substance must occur. As to the proper average amount experience tends to support the ordinary dietetic usages of mankind.

It is sometimes said that in such a matter as diet rules are unnecessary and that we may safely be guided by appetite alone, the truest indicator of the need for food. A little reflection will raise doubts as to the feasibility of relying on this measure of what is requisite. To the consciousness of the individual it is difficult or impossible to distinguish between the desire for food arising from true hunger and that produced by the sight of food which is attractive to the palate; in other words, to distinguish between need and greed. To the ascetic living on the plainest fare this problem might not present the same difficulty, but it is unlikely that asceticism will largely replace the luxurious habits of modern civilisation. Even on monastic fare difficulties might arise, for appetite is stayed by mere bulk of material ingested, at least for a time. Thus a meal of rice is temporarily most satisfying, but as digestion proceeds the lack of sustenance contained in the food in proportion to its bulk becomes, to the European at all events, unpleasantly obvious. If, then, individual consciousness is a fallible guide, it is difficult to place much reliance on popular habits as a criterion of what is necessary. When, however, the habits coincide fairly closely with the results of experiment they may be provisionally accepted, and popular usage certainly demands a protein ration far above CHITTENDEN'S figures. On the whole, we do not think it would be wise for healthy individuals to make any sudden alteration in their habits of life in the direction of adopting a strict Chittenden diet. There is some evidence, derived from experiments on animals, to show that such a proceeding leads to a diminution in the resistance of the body to infective diseases. Nevertheless, it is undoubted that the well-to-do classes at all events—and we may include in this class not only the nominally rich but all those who have the means to live without oppressive forethought for the morrow—have a tendency to indulge excessively in food, especially in that of an animal nature. Good may therefore ensue if the views recently propounded result in some curtailment of the consumption of meat, which has increased so markedly in recent years. To those who have reached or passed middle life such self-restraint is specially advisable, above all if they are compelled to lead somewhat sedentary lives. To such, a reduction of the protein ration of youth, and moderation in consumption even of the other forms of food, may be safely commended. As the fire of life burns less fiercely and the output of energy is smaller, so the fuel supplied should be reduced, that the system may not be clogged with ashes and half-burnt cinders whereby the activity of the whole machine is from time to time impaired and may even be prematurely arrested.

Enteric Fever due to Shell-fish.

THE problem of tracking an outbreak of infective disease to its origin often presents difficulties of no mean magnitude and necessitates in the tracker qualities which are popularly associated rather with criminal investigations than with medical and sanitary studies. We are inclined to attribute the faculties of accurate observation and close deductive reasoning necessary for such inquiries to Mr. SHERLOCK HOLMES rather than to his medical friend, Dr. WATSON. This is wrong, and we have often felt that the novelist did an injustice to the medical profession, his own profession, moreover, when he used a member of it as a foil to his hero, for our sanitarians need have no fear of challenging comparison with legal or criminal investigators. A conspicuous example of such reasoning applied to the problems of public health is afforded in the noteworthy paper recently read by Dr. L. W. DARRA MAIR before the Epidemiological Section of the Royal Society of Medicine on the subject of the prevalence of enteric fever in Belfast and of its mode of causation. For many years this city held an undesirable pre-eminence in respect to its death-rate from enteric fever,

the rate of mortality per 1000 persons living being in the decade 1891–1900 0·86, as compared with an average of about 0·32 among 19 other large towns, while in the following decennium the Belfast figure was 0·57, as against 0·19 in the other towns. The need for special inquiry into the cause of such prevalence was therefore clear. The two methods of the spread of enteric fever which are most widely recognised are by means of water and by defective disposal of sewage. These were therefore first investigated by Dr. MAIR and found insufficient to account for the phenomena of spread in Belfast. It was obvious that the distribution of the cases did not correspond at all accurately with the areas supplied from any one of the water intakes, and the onset of the outbreaks had not that sudden "explosive" character which is associated with those due to contaminated water. On the other hand, there were factors which were quite consonant with the possible influence of defective sanitary arrangements on the prevalence of the disease, as a considerable section of the city was in the earlier part of the period of time covered by the investigation badly furnished with sewers and largely dependent on a system of privy-middens. Nevertheless, this hypothesis had also to be discarded, as it was found that improvement in sewerage had not been followed by any decline in the prevalence of the fever; indeed, there had actually been an increase in the latter corresponding with the provision of a scheme of drainage by which the sewage of the town was carried out into Belfast Lough. Apart from this peculiar phenomenon the only outstanding fact bearing on the problem was that the areas of maximum infection corresponded pretty accurately with those parts of the city which were mainly inhabited by the labouring classes.

These two hypotheses being thus rejected, there remained that of the spread of enteric fever by means of infected shell-fish. This mode of causation has often been traced in isolated outbreaks, but, so far as we are aware, it has not hitherto been found answerable for continued epidemic prevalence of enteric fever in particular localities. Nevertheless, in the present instance this mode of explanation was found to correspond closely with the observed features of the disease. There was in the first place plenty of opportunity for such infection, as cockles taken from the shore of the Lough were largely consumed in the town, being not only hawked about the streets by local vendors, but also collected by many of the inhabitants themselves, and eaten for the most part raw. A decline in the incidence of enteric fever occurred in the early "eighties" coincidently with the reclamation of a large portion of the foreshore from which the shell-fish were taken, while the introduction of the new scheme of sewerage seemed actually to inaugurate a rise in the number of attacks, doubtless owing to the carriage to the sea of a larger portion of the whole sewage of the town, and the consequent greater infection of the cockles lying on the shore. Special facilities for this pollution of the shore waters were traceable, not only to the sluggishness of the tides at this point which thus failed to carry off the offending material, but also to a breakdown of the actual sewer, which leaked over a considerable portion of the foreshore. The conditions thus resulted in a discharge of crude sewage, amounting to 12 or 15 millions of gallons daily, into "shallow and sluggish water in the immediate vicinity of shell-fish beds daily drawn upon for public consumption." Several minor features tended to confirm this view of the causation of the epidemic. Thus it was noted that the Jewish population—not a large one indeed in this locality—was singularly free from the scourge, and this fact was readily explicable in view of their abstinence from shell-fish as an article of food; whereas in outbreaks elsewhere, in which the disease had been associated with the distribution of infected milk, they had not shown any racial immunity. Further, the inhabitants of public institutions, such as the hospitals, the workhouse, and the prison, who would naturally have no opportunities of obtaining shell-fish for consumption, were on the whole free from enteric fever. Finally, certain peculiarities in the seasonal incidence of the disease in Belfast admitted of explanation on this hypothesis. It was found that the smallest number of cases occurred here in the winter months, December to February, while the incidence rose in the spring and was highest in August and September, whereas in London and in Manchester, which are compared in Dr. MAIR'S paper, the spring months show no such rise, being, indeed, specially free from enteric fever, while the morbidity is in September and in October. Now it is true that in Belfast there are no special seasons for the consumption of shell-fish, but the indulgence in certain of these delicacies is confessedly greatest in the spring and summer, since the pleasant weather tempts many persons to frequent the shore and gather the cockles.

There can be little doubt that in any epidemic of enteric fever other causes take part in spreading the epidemic besides the original source of infection. Thus, as Dr. A. NEWSHOLME pointed out in the discussion which followed Dr. MAIR'S paper, the existence of privy-middens may readily lead to extension of an epidemic which is once established, while the presence of a certain proportion of "typhoid-carriers" among those classes of the population who are engaged in the preparation of food constitutes another source of danger. Nevertheless, it was generally admitted by the section of the Royal Society of Medicine, and we think on excellent grounds, that Dr. MAIR had thoroughly established his position with regard to the Belfast epidemic. The whole paper constituted a most valuable contribution to the study of this source of enteric fever, and will doubtless lead to stricter control being exercised by public health authorities all over the country with regard to the conditions which prevail as to the collection, storage, and sale of such dangerous articles of diet as cockles and mussels.

THE CONGRESS ON ALCOHOLISM.—The International Congress on Alcoholism will meet in London at the Imperial Institute on July 19th and following days. The Duke of Connaught will preside, and the list of vice-presidents contains many influential names. Various Governments in both hemispheres have appointed official representatives, those for France being M. Riémain and M. G. Barbey, while those of the United States of America include, among others, Surgeon F. L. Pleadwell of the U.S. Navy, and Dr. T. D. Crothers of Hartford, Connecticut.

Annotations.

"Ne quid nimis."

DARWIN, EVOLUTION, AND PATHOLOGY.

THE recent celebrations at Cambridge of the centenary of the birth of Charles Darwin and of the fiftieth anniversary of the publication of the "Origin of Species" were remarkable not only for the wide area from which those taking part in the celebration were drawn, but also, and even more, for the unanimity with which the importance of Darwin's teaching was appreciated. The meeting at Cambridge emphasised the fact that the few who seem to claim that Darwinism has been superseded are either themselves misunderstood or are not fully acquainted with what Darwin really taught. Those who know his teaching best are best able to appreciate how widely his ideas have penetrated into every science and how adaptable in many directions those ideas were and are, so that it is extremely difficult to say of any work done since his era that it is directly antagonistic to his theories. The central and general idea of evolution is very old, but until Darwin arose, no simple or reasonable explanation had been given of the method by which this evolution might be brought about. Many had recognised the apparently progressive change in organic forms, so that there was an almost continuous slope from the lowest forms to the highest, but it was hardly definitely recognised that all these organisms might be parts of a true genealogical tree. Darwin was perfectly original in pointing out that while change in organic forms depended on the variations and peculiarities present in every organism, the persistence of these changes was dependent upon their power of agreement with the conditions in which the organisms were placed. The question whether the variations are great and immediate or slow and little is on another plane; the main doctrine depends on the survival of those forms which are best adapted to the circumstances in which they find themselves. The evolution of plants and animals is now universally admitted, but it is not sufficiently perceived that the doctrine of evolution is applicable to many other sciences than biology. Recent researches have indicated that in matter itself there has been an evolution of elements with the ultimate survival of those which could endure the conditions of their environment. It is, however, in the realm of pathology that the importance of evolution is of the greatest interest to us. In the never-ending struggle between an animal and the parasitic micro-organisms invading it, forms are slowly evolved which have greater and greater power of resistance to the microbic attacks, and thus in time a racial immunity of greater or less power is reached. This is well exhibited, for example, in the case of measles. Through centuries measles has existed as an endemic disease in this country, and by a selective removal of those in whom the disease was of special severity a race has arisen in whom measles is comparatively mild, though even at present some 13,000 die yearly from the disease in England and Wales. That this diminution of the severity of measles is in no way the result of a weakening of the virus is conclusively shown by the result of the introduction of the disease to a race to which the disease is new, when an appalling mortality rate will occur, as was terribly exemplified in the Fiji Islands some 35 years ago. During the proceedings in honour of Darwin at Cambridge Professor Metchnikoff referred to the evolution of resistant strains of bacteria. In the lower organisms which possess to a high degree the power of rapid multiplication we are able to see for ourselves the evolutionary process at work. To the bacterium which passes through hundreds of generations in a day, that day is as a thousand years to higher organisms, and a bacterium may undergo changes in a few hours by which its qualities are absolutely modified. Its virulence as an agent of disease may be enormously increased or profoundly diminished. The attenuation of a virus, while passing through the body of a resistant host, is probably only another example of rapid evolutionary changes in micro-organisms. Such widely differing topics as racial addiction to alcohol and structural modification in parasites can be discussed from their Darwinian side, but we have said enough to show that by a correct appreciation of evolution and the doctrine of the survival of the fittest the medical man is enabled to penetrate more deeply into the mechanism of morbid processes, and to understand more fully the complexities of immunity which prevail in the animal world.

THE BIRTHDAY HONOURS.

THE list of Birthday Honours is somewhat long and we might add is only redeemed from mediocrity by the honours accorded to the medical and scientific professions. No new peers are created, but among those who have received a baronetcy of the United Kingdom is Mr. Henry Morris, the President of the Royal College of Surgeons and the treasurer of the Imperial Cancer Research Fund. Sir Henry Morris, of course, is well known to all medical men for his excellent work in surgery, especially that connected with the kidneys and the other urinary organs, as well as for his munificent gifts to the Middlesex Hospital for the endowment fund of the medical school and his energetic work in support of Epsom College. The other member of the medical profession to receive a baronetcy is Sir Dyce Duckworth, who is well known as a consulting physician to St. Bartholomew's Hospital, who has been medical referee to the Treasury since 1894 and treasurer of the Royal College of Physicians of London since 1884. Among those to receive the honour of knighthood is Mr. Francis Galton, F.R.S., a grandson of Dr. Erasmus Darwin, a man eminent in many branches of science, and the author of that delightful little work, "The Art of Travel." The Royal Army Medical Corps receives an honour in the shape of a knighthood granted to Lieutenant-Colonel W. B. Leishman, M.B., R.A.M.C., so well known for his researches in bacteriology and protozoology. Mr. Thomas Edward Thorpe, C.B., F.R.S., who also receives a knighthood, is the eminent chemist who is the chief of the Government Laboratory. In the Order of the Bath the Right Hon. Sir Ernest Cassel, so well known for his munificent gift of £200,000 for charity which was applied by His Majesty the King for the provision of sanatoriums for tuberculous patients, receives a G.C.B. Surgeon-General Lionel Dixon Spencer, M.D., I.M.S., and honorary surgeon to His Majesty, is made a Knight Commander of the Bath, and among those to receive a Companionship of the Order are Surgeon-General Hayward Reader Whitehead, F.R.C.S., R.A.M.C., principal medical officer, Southern Command, and Colonel de Burgh Birch, M.D. Lieutenant-Colonel Robert Neil Campbell, M.B., I.M.S., officiating Inspector-General of Civil Hospitals in Eastern Bengal and Assam, and Mr. Edgar Thurston, L.R.C.P., the Superintendent of the Government Central Museum of the Province of Madras, are made Companions of the Order of the Indian Empire, while the Kaisar-i-Hind gold medal has been awarded to Dr. Temulji Bhikaji Nariman, L.M., F.R.M.S., of Bombay. Professor William John Ritchie Simpson, M.D., well known for his services in the matter of plague, receives a Companionship of the Order of St. Michael and St. George. Among other names we may mention that of Mr. F. J. Campbell, LL.D., who, blind himself, has done such good work in the establishment and guidance

of the Royal Normal College for the Blind and who has been honoured with a knighthood, and the Rev. Hermann Adler, Ph.D., the Chief Rabbi, who has been made a Commander of the Victorian Order. The theatrical profession, which is always ready to spend itself in the cause of charity, and especially in that of hospitals, is honoured in two of its members who receive knighthoods, Mr. A. W. Pinero and Mr. Herbert Beerbohm Tree.

THE PROTEIN CONTENT OF THE CEREBRO-SPINAL FLUID IN GENERAL PARALYSIS.

THAT protein is a normal constituent of the cerebro-spinal fluid has been known for some 40 years. While an increase in the protein amount in cases of inflammation of the meninges has been commonly recognised, it is only within the last few years that a similar and constant increase in parasyphilitic conditions has been described. Pathological increase in the total protein (albumins and globulins) is now regarded as a definite feature of the cerebro-spinal fluid in general paralysis, an increase generally, though not necessarily, parallel in extent to the degree of lymphocytosis. Further, the lymphocytosis due to parasyphilis is more constantly accompanied by an increase in the protein content than is the lymphocytosis due to tertiary syphilis of the nervous system. The protein increase may amount to four times the normal quantity, and it is easily recognised by any of the simple qualitative tests. The study of the form of protein present is of greater interest and importance. In the normal fluid globulin, probably serum globulin, is the form commonly met with; if albumin is present it must be in exceedingly small amount. In the fluid of the general paralytic, as is pointed out by Dr. Ernest Jones in the current number of the *Review of Neurology and Psychiatry*, the chemical changes are not yet determined with accuracy, and therefore the question is rather to decide which chemical reactions are the most characteristic. The reaction which has been recently introduced by Noguchi deserves mention. It may be used both for the blood serum and the cerebro-spinal fluid. To 0·1 cubic centimetre of clear fluid is added 0·5 cubic centimetre of a 10 per cent. solution of butyric acid in physiological saline; the mixture is heated to boiling, 0·1 cubic centimetre of 4 per cent. sodium hydrate is then added, and the mixture again heated to boiling. If the reaction is positive peculiar light greyish flocculi appear within half an hour, and often within a couple of minutes. Noguchi holds that his reaction is given only by globulin, and especially by the changed form of globulin present in syphilitic and parasyphilitic cases. The great theoretic interest of this fact lies in the recent discoveries that what are provisionally called the Wassermann antibodies are without doubt globulins; in fact, they have been demonstrated to be euglobulins. It may be said that the Wassermann reaction depends on an increase of some special form of euglobulin normally present in the blood serum and cerebro-spinal fluid, and in this euglobulin is contained the antibody responsible for the positive reaction in that test. Noguchi claims that his method shows this increase better than any other. He found it positive in 37 cases of general paralysis out of 43. Dr. Ernest Jones has obtained it in all of 15 cases of that disease, and in no other, except gummatous meningitis and diffuse cerebro-spinal syphilis. Recently Gay and Fitzgerald have published their results with Noguchi's test in 33 cases. In eight cases of general paralysis it was positive, in one of diffuse cerebro-spinal syphilis, and in 13 out of 14 cases of syphilitic meningitis. It was negative in two cases of congenital syphilis and in eight non-syphilitic cases. Dr. Ernest Jones concludes that while Noguchi's reaction is of less significance than the Wassermann reaction in distinguishing between general paralysis and cerebro-spinal syphilis, it is of the greatest value in establishing a diagnosis between general paralysis and non-syphilitic mental affections.

MILK ADULTERATION.

A FORTNIGHT ago we recorded the infliction of a heavy fine upon a dairy company for diluting its milk. Two other serious charges, one being of a similar nature and both connected with the sale of milk, came before Mr. Cluer at the Old-street police-court on the same day last week and were dealt with by exemplary sentences, the magistrate observing to one of the defendants, who complained that trade was so bad that the business was "starvation" for him, that it was rather one of starvation for the babies who had to drink such milk. In this instance the summons was for selling milk containing 19 per cent. of added water, and a previous conviction for an offence of the same character in last December was proved. The offender, James Bright, trading at Bethnal Green, was fined £40, with the alternative of three months' imprisonment. In the other case the borough council of Shoreditch prosecuted the Great Western and Metropolitan Dairies Company who were the defendants to a charge of selling milk from which 32 per cent. of the requisite quantity of butter fat was absent. Against the company two recent previous convictions were proved, obtained respectively by the Camberwell and Bermondsey borough councils, and Mr. Cluer imposed a penalty of £50 with 10 guineas costs. The repeated punishment of the same defendants in cases of milk adulteration and the instances mentioned of convictions of the same company in three different boroughs, all inhabited by a poor population, support the suggestion made in THE LANCET of June 19th, to the effect that the proposed licensing of milk-dealers with a view to the prevention of infectious disease might carry with it the possible forfeiture of licences in cases of adulteration, and that special provision should be made so as to render this an effective punishment and preventive measure in the case of companies.

THE RARITY OF CONGENITAL DEFORMITIES IN EGYPT.

Professor F. E. Madden, of the Egyptian Government School of Medicine, has sent to us an interesting note on the rarity of congenital deformities in Egypt, in which he writes: "I have recently operated on an Egyptian boy with cleft palate, a fact not remarkable in itself were it not that this is the first operation for this condition I have performed in Kasr-el-Ainy Hospital during nearly 11 years' general surgical work. Nor are there any children's hospitals in Cairo where such cases might be treated unbeknown to us. With the truly awful struggle for existence amongst Egyptian children, it may well be that infants starting life with such a handicap would be the first to perish, but if the condition existed to any extent I think we would meet with it more frequently than we do. It is interesting to note also that of the many thousands of ancient Egyptian bodies which Professor G. Elliot Smith has unearthed and examined there has only been one case of cleft palate in the whole series. In the third Bulletin of the Archæological Survey of Nubia, published by the Survey Department in Cairo, 1909, this unique specimen (found by Dr. D. E. Derry) is thus described: 'In Grave No. 91 was found the skeleton of a young woman, over 20 years of age. She differed from the large majority of the women in this cemetery in being orthognathous; but though the margins of her nares were sharp, the nose was rather flat and broad, and the mandible distinctly Negroid. Her skull is of special interest, as it exhibited an extreme form of cleft

palate; a wide gap extends from the posterior margin of the palate to the posterior edge of the premaxilla in front. The deficiency measured 23 by 24 millimetres, and is symmetrical: in other words the palatal processes of the palate and the superior maxilla are quite rudimentary.' This patient lived between the fourth to the sixth centuries A.D., and her skull now forms one of the most interesting exhibits in our Anatomical Museum, eloquent evidence of one of the very few mistakes made by Nature in the shaping of primitive uncivilised man. The only case of talipes met with by Professor Elliot Smith among the ancient Egyptians was described by him in the *Bulletin de l'Institut Égyptien*, 5e Serie, Tome 1, pp. 45–47. The left foot of King Siptah, one of the last Kings of the XIXth Dynasty, was found to be 'distorted in the manner known as talipes equino-varus.' The rarity of congenital deformities generally among the *modern* Egyptians is well seen by referring to the statistics of the Kasr-el-Ainy Hospital, compiled by Dr. H. B. Day, the medical registrar, for the last two years. In 1907, with a total of 2630 surgical admissions, the only congenital deformities were 5 hare-lips, 2 talipes, 2 cases of imperforate anus, and 1 of extroversion of the bladder; while in 1908, of 2702 admissions, there were 3 hare-lips, 2 cases of imperforate anus, 1 of hypospadias, 1 of undescended testicle, and 1 of meningo-encephalocele." Professor Madden considers it to be impossible to endeavour to explain this rarity of congenital defects in Egypt, unless the time-honoured scapegoat of our too modern civilisation be invoked to account for their frequency in other countries.

FLIES AS A NUISANCE.

THAT flies can convey infection is undoubted, but the question of whether or no they convey the infection of summer diarrhœa has been stated by Sir Shirley Murphy to be still unsettled.[1] But that flies are a nuisance and an annoyance, that they may come straight from a dung-heap or an even worse locality and settle on articles of food or fall into milk or other fluids, is certain, and, moreover, at least one species, Stomoxys, inflicts a very painful bite. These facts give special interest to some preliminary reports to the Local Government Board which are now before us on Flies as Carriers of Infection. The final report on the whole subject will be written by Dr. S. M. Copeman and will appear at a later date. The three reports published comprise one by Mr. E. E. Austen on how to distinguish the differing species of flies commonly found in houses—namely, Musca domestica, Stomoxys calcitrans, and Homolomyia canicularis. The difference in the sexes is shown by the relative position of the eyes to one another. In the female they are wide apart, but in the male they are close together. The three species are easily distinguishable by the arrangement of the veinings on their wings, a point well shown in the illustrations supplied with the report. Mr. Austen also supplies a note on the various kinds of flies received by him for examination during the summer and autumn of 1908. Musca domestica largely outnumbered all other kinds received, but it is worthy of mention that some specimens were received of Protocalliphora greenlandica, a species which is not ordinarily found in dwellings. Mr. Austen says that its larvæ are evidently imported in sacks of bones received at glue and size works, and that possibly it breeds in these works. It was found in numbers on August 10th in the kitchen of a London County Council school about 150 yards from works of this description. The last report is by Mr. J. P. Jepson on the Breeding of Musca Domestica during the winter months, and the inquiry was carried on in the Quick Laboratory, University of Cambridge. The conclusions were that flies do breed in favourable circumstances such as they are placed in during mild winters, but that whether they do so in ordinary circumstances is uncertain, although it is probable that such is the case in warm places. On the whole, it would appear from the various researches on flies which have been undertaken of late—for instance, those by Dr. W. H. Hamer[2] for the London County Council, and by Dr. J. T. C. Nash[3]—that the poet, be he William Oldys or another, was in error when he sang—

> "Busy, curious, thirsty fly,
> Drink with me and drink as I."

It would be more reasonable to invite the fly to a separate drink of formalin.

[1] THE LANCET, Dec. 19th, 1908, p. 1834.

THE GLOUCESTER ROYAL INFIRMARY.

THE King, on the occasion of his visit to Gloucester on June 23rd, was graciously pleased to give his permission for the Gloucester General Infirmary to be known henceforward as the Gloucester Royal Infirmary, "in recognition of the admirable work done by those responsible for its management, and the devoted and successful efforts of its staff in the prevention and alleviation of human suffering." Mr. E. Dykes Bower, senior surgeon to the infirmary, informs us that the last occasion when Gloucester received the honour of a Royal visit was on July 24th, 1788, when George III., with the Queen and the Princesses Augusta and Elizabeth, visited the hospital and, as minuted in the infirmary books, "expressed their approbation of the attention of the Faculty to the health of the patients, and of the cleanliness and good order with which the House appeared to be conducted." The infirmary was founded in the year 1755, when King George II. presented 9200 feet of rough oak timber from the Forest of Dean for use in the fabric of the new building. We congratulate the Gloucester Royal Infirmary upon the well-won honour now conferred upon it by the illustrious descendant of its first Royal benefactor.

THE ABUSE OF HIGH-FREQUENCY CURRENTS.

IN view of the use, or rather abuse, to which high-frequency electrical treatment has been put during recent years, it takes a certain courage to come forward with a contribution bearing on this particular therapeutic measure. That "high-frequency" methods have obtained such a malodorous reputation among some members of the medical profession is not the fault of the methods themselves. The greatest curse has been the fact that the apparatus is imposing to the non-expert eye, it makes a lot of noise, and there are plenty of sparks and violet brush discharges, which can be allowed to come into momentary contact with one's person with comparatively trifling results; and when applied in the usual way the patient experiences no unpleasant sensations from them, with possibly a few exceptions. Perhaps no combination of circumstances than those just detailed could have been better devised with the object of fitting in with the schemes of unskilled and more or less unprincipled persons posing as experts in electrical treatment. One of the least pleasant features of the situation is the readiness with which many qualified medical men, who ought to know better, have supported institutions throughout the country by sending their patients to them for a course of treatment while making no inquiry as to the methods of procedure of those actually responsible for the treatment. The possibility of high-frequency currents doing good in certain cases has never been doubted by those who were in a position to form an opinion on the matter, but, with what has taken place on many occasions in

[2] THE LANCET, March 21st and Dec. 19th, 1908.
[3] THE LANCET, Dec. 5th, 1908, p. 1668.

their minds, few medical men with real knowledge have been tempted to express themselves in any way on the subject. The time would seem opportune, however, to do something to appraise the value of high-frequency treatment with an approach to accuracy, and on this account we would draw attention to a paper in this issue by Dr. C. F. Bailey of Brighton. Dr. Bailey has brought forward his arguments in a very straightforward and concise way and quotes several cases which appear to bear out his contentions. A great feature of high-frequency treatment is that electrical energy alone seems to be the ruling factor. In all other electrical methods the action is complicated by chemical processes, the products of electrolysis, migration of ions, and so on, and this differentiation makes a study of the action of high-frequency currents on living tissues one of exceptional interest.

THE PRACTICAL VALUE OF THE ESTIMATION OF THE COAGULATION-TIME OF THE BLOOD.

THE method of estimating the coagulation-time of the blood introduced by Sir Almroth E. Wright, and the practical conclusions obtained by him in regard to the influence of calcium salts and citric acid upon the coagulation-time, have been criticised in some recent papers by Dr. T. Addis.[1] Dr. Addis claims that the method he employs is more accurate than that of Sir Almroth Wright, and that calcium salts and citric acid do not effect any change in the coagulation-time of the blood. Wright's method and its value have been exhaustively studied in an interesting paper published in the *Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie*, Band XX., p. 218, by Dr. Wolfgang Denk and Dr. J. Hellmann, and we recommend our readers to study this interesting communication. Its authors review the various methods employed to estimate the coagulation-time and point out the importance of certain details of technique—e.g., the effect of variations of temperature, the effect of taking the blood from a vein or from a simple puncture, and the influence of pressure around the puncture whereby the blood becomes mixed with tissue fluids and the coagulation-time considerably accelerated. The object of their research was to examine systematically the coagulation-time of the blood in a variety of conditions in which there was any anomaly of the blood, or in which hæmophilia was suspected, in order to establish the value of routine examination of the coagulation-time as a precautionary measure before operation in surgical cases. They used Wright's method, taking the most rigid precautions to avoid sources of error, and they regard it as the most trustworthy. They insist on the importance of cleaning the finger with ether or benzine, the avoidance of pressure, and the use of a fresh puncture for each examination made. To ensure the temperature being constant the pipettes used in this method are at once placed in a thermos flask containing water at 37° C. They found that in normal persons the coagulation-time showed very little variation, being 2 minutes 30 seconds. The time is accelerated in malignant cachexia and in marasmus. This acceleration is not due to the malignant growth, since 20 observations on cases of malignant disease without cachexia did not show it. They give a remarkable table, showing their observations on 18 cases of various kinds in which the coagulation-time was longer than the normal, including some of hæmophilia and of purpura, in nearly all of which the history showed the occurrence of abnormal and intractable bleeding, either spontaneous or as a sequel of some operative procedure. In two of these cases the coagulation-time was over five minutes, and in nearly all of them it was over three. They confirm the observations of previous workers as to the lessened coagulability of the blood in hæmophilia. They also record observations on the effects of calcium lactate, of milk diet, and of citric acid respectively upon the coagulation-time, and they confirm in every detail the contentions of Wright and his co-workers. They recommend the prophylactic administration of lime salts or serum injections controlled by observations on the coagulation-time before undertaking operations upon bleeders, and further advise that in the after-treatment of patients with normal or accelerated coagulation-time, milk and other agents increasing that coagulability should be avoided. Their observations form a striking confirmation of the results obtained by Sir Almroth Wright by his own methods.

[1] Brit. Med. Jour., April 24th, p. 997, and Quarterly Journal of Medicine, Jan. 1909, p. 148.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

THE sixty-eighth annual meeting of the Medico-Psychological Association will be held partly at Wakefield and partly at Leeds. The various committees will meet at the Queen's Hotel, Leeds, on July 21st, and the council will meet on July 22nd at Wakefield Asylum. The council meeting will be followed at 11 A.M. by the annual meeting. At 1 P.M. the members will be entertained at lunch by Professor W. Bevan-Lewis. After lunch the retiring President, Dr. Charles A. Mercier, will introduce Professor Bevan-Lewis, his successor, who will deliver an address, and Dr. A. Helen A. Boyle will give an account of an attempt at the Early Treatment of Mental and Nervous Cases, with Special Reference to the Poor. At 10.30 A.M. on July 23rd the following papers will be read at the Queen's Hotel, Leeds:—Dr. J. R. Gilmour on the Mental Symptoms in Exophthalmic Goitre and their Treatment; Dr. Nathan Raw on a case of Acute Mania relapsing into Unconsciousness lasting Seven Months; and Dr. G. Scott Williamson on the Cerebro-spinal Fluid in General Paralysis and the Nervous Lues. In the afternoon of the same day papers will be read by Dr. G. Scott Williamson on the Bacillus paralyticans; Dr. Ford Roberston on the Experimental Production of General Paralysis; and Mr. L. O. Fuller on Alcoholism, Crime, and Insanity. The annual dinner will take place on Thursday, July 22nd, at the Queen's Hotel, Leeds, at 7.30 P.M. Further particulars may be obtained from the honorary secretary, Dr. C. Hubert Bond, 11, Chandos-street, Cavendish-square, London, W.

THE CAUSES OF CHEYNE-STOKES BREATHING.

THE remarkable form of respiration known by the name of its earliest observers as the Cheyne-Stokes breathing has recently been carefully investigated by Dr. C. Gordon Douglas and Dr. J. S. Haldane, the reader in physiology at Oxford. Cheyne-Stokes or periodic respiration was originally observed by Dr. Cheyne in 1818, and again by Dr. Stokes of Dublin in 1846, but the cause or causes of it are obscure. The alternate movements of inspiration and expiration gradually increasing in intensity or vigour up to a certain point, and then diminishing till they are succeeded by a pause of variable duration, have been attributed to disease of the respiratory centres, to abnormal conditions of the heart, and to disease of the brain, and have been observed in narcotic poisoning, in healthy men at high altitudes, in infants, and in hibernating animals. Lately, Dr. M. S. Pembrey and Dr. R. W. Allen have found that pathological Cheyne-Stokes breathing is abolished by the administration of either oxygen or air containing excess of CO_2. Dr. Douglas and Dr. Haldane in their experiments recorded in the number of the *Physiological Journal* for June, 1909, found that the Cheyne-Stokes breathing could be easily produced experimentally and have

taken advantage of this fact in order to investigate the causes of periodic respiration. They found that if apnœa were produced by deep respirations the return to normal breathing was preceded by a phase of Cheyne-Stokes respiration, and that this periodic breathing is produced by periodic occurrence and disappearance of the (indirect) excitatory effects of want of oxygen on the respiratory centres. The want of oxygen may be due to abnormal deficiency in the alveolar oxygen-pressure, or it may be due to effects on the circulation of changes in the breathing, or to both causes combined.

THE AFTER-CARE OF SANATORIUM PATIENTS.

WE have received a paper on the After-care of Sanatorium Patients, read by Dr. H. W. McConnel on June 9th before the Conference held by the National Association for the Prevention of Consumption and Other Forms of Tuberculosis at the Art Gallery, Whitechapel, in connexion with the exhibition which we have already noticed. The paper is of so practical a character that a summary of its chief contents is warranted. It contains the results of the experience of seven years' work at Kelling Sanatorium. The objects of after-care are given as twofold—viz., to arrest relapse and to prevent the development of the loafer. Dr. McConnel points out that the stay at charitable sanatoriums has usually to be curtailed from family reasons or from lack of funds, and that it is as a rule shorter than is desirable. There is, therefore, great scope for advice to the patient in regard to his habits of life and his occupation after leaving the sanatorium. He also strongly insists that there is a great field for measures to prevent the tendency to loaf and to shirk likely to be engendered by the treatment in sanatoriums, unless the objects of the whole scheme are kept in prominence, these being to render patients fit for active work again. The work done by each patient at Kelling is selected by the medical officer and controlled by an overseer. There is also a system of "working patients," who are really ex-patients, eight men and two women, kept on at the sanatorium and selected from the earlier and more favourable cases. They receive their board and lodging free, and in addition a little weekly pocket-money, ranging from 2*s.* to 5*s.* They have more definite working hours than the ordinary patients, and perform more definite forms of work. Another important aspect of after-care is the giving of advice and assistance to patients on leaving. A routine practice is followed at Kelling of considering the condition and circumstances of each case one month after admission. What work the patient is to do on leaving the sanatorium is discussed and the conditions of life in regard to his former occupation are considered, both to see how they can be improved with a view to his return to his former work, or, in case this may be radically unsuitable, with a view to advising him in regard to some change. In addition to this, each outgoing patient receives full advice from the resident medical officer on his departure, with special directions how best to continue his treatment. Each is also advised to have a bedroom to himself, and parents are instructed to bring up their children to some career affording them the best conditions to resist the onset of the disease. In regard to after-care, in the exact sense of the words—viz., care after leaving the sanatorium—an attempt is made to keep in touch with as many of the patients as possible, with the object of giving them advice and help. Each old patient receives a Christmas-card each year, with a request for information as to his health and progress. If no answer is obtained a letter is sent enclosing a stamped, directed card for a reply, and if this fails to bring any reply, enquiries are made, if possible, through someone known to be interested in the case. Dr. McConnel concludes his paper with a strong plea that all sanatoriums should adopt measures for after-care. His recommendations and suggestions are practical, and his paper constitutes a striking record of good and truly philanthropic work.

THE USE OF ELECTRIC CURRENTS FOR THE SEPARATION OF TUBERCLE BACILLI FROM URINE.

WE publish in this week's issue of THE LANCET an interesting research by Dr. Charles Russ upon microbic electric movements and an ingenious application of this property of bacteria to the separation of the tubercle bacillus from urine. It was found that certain bacteria tend to aggregate at one or other electrode when a suitable current is passed through a fluid in which they are suspended, and that when the current is reversed they move in the opposite direction—i.e., towards the electrode the polarity of which now becomes the same as that at which they had previously collected. This aggregation varies with the nature of the electrolyte in the fluid in which the bacteria are suspended. Dr. Russ discusses the cause of this aggregation, and offers as the most probable explanation the suggestion of an affinity between products of electrolysis and the bacteria, leading to their conveyance together with the electrolytically dissociated ion towards the appropriate pole. The fact that a similar aggregation occurs with bacteria killed by boiling is strong evidence against the movement being the result of electrical processes generated in the bacterial protoplasm. Applying this process to the separation of tubercle bacilli from urine, Dr. Russ, after repeated and laborious trials of a number of electrolytes added to the urine, obtained the best results with a mixture of ethylamine, lactic and bromic acids in certain proportions. By using a special form of electrode so arranged as to trap the bacilli when aggregated in its vicinity, he was able to recover tubercle bacilli from urines to which they had been added in relatively small numbers, although attempts to prove their presence by centrifugalisation failed. He suggests, also, that further research on these lines may possibly serve to assist in the specific discrimination of bacteria. In any case, the results so far obtained are highly interesting and promise to have a real practical value, since a trustworthy method for the early detection of tubercle bacilli in urine would be of substantial assistance in diagnosis.

PULMONARY TUBERCULOSIS IN AUSTRALIA.

WE have received a copy of a pamphlet on Phthisis in Australia, with more especial reference to Western Australia, written by Dr. J. H. L. Cumpston, medical officer of the Central Board of Health, Perth, Western Australia, and published by the Registrar-General's Department of that State. A number of statistical tables and diagrams are included, and from an analysis of these Dr. Cumpston concludes that there has been since about 1885 a progressive decline in the death-rate from pulmonary tuberculosis throughout Australia as a whole, and in each individual State with the exception of Western Australia, in which the death-rate declined until 1899, rose again until 1901, since which date it has remained practically stationary. The explanation suggested to account for the maintained death-rate in Western Australia is that it has received contributions from each of the other States, more especially during the sudden increase in its population due to the discovery of gold-fields and to the energetic policy of importing agricultural settlers pursued by the authorities. In support of this suggestion it is shown that in the years 1903–05, more than half of the total cases were in people

who had been less than ten years in the State. The highest mortality from pulmonary tuberculosis in Western Australia occurs between the ages of 25 and 35 years. Between 15 and 25 years more females die from the disease than males, while below the age of 15 years and above that of 25 the male deaths are in excess. In Australia the decline in the death-rate from this disease commenced soon after the discovery of the tubercle bacillus, and according to Dr. Cumpston this seems to be the only factor in Australia that can at present be shown statistically to have had any effect. The passing of effective Health Acts cannot be regarded as the cause, since these only date from 1890 in Victoria to 1904 in Tasmania. That there is scope for improvement is shown by the fact that during 1907 the Commonwealth suffered a loss of 2863 deaths from this disease, of which 206 occurred in Western Australia. At the same time the death-rate of the Commonwealth from pulmonary tuberculosis compares very favourably with that of most other countries, being only 808 per 1,000,000 of the population for the year 1905, compared with 1144 for England and Wales for the same year. Dr. Cumpston strongly recommends the prohibition of any patients with this disease from other countries landing at any port within the Commonwealth, in order to prevent them from becoming a charge upon public funds and centres of fresh infection. We are strongly in sympathy with any practical measure directed to the prevention of the spread of this disease, but we deprecate any tendency to treat the unfortunate sufferer as a pariah to be avoided, and a rigid enforcement of such a proposal as that suggested by Dr. Cumpston would be attended with serious hardship and might prevent the acquisition by the Commonwealth of some desirable emigrants with arrested disease.

THE PHYSIOLOGICAL ACTION OF ALLYL ISOTHIOCYANATE.

IN the *Bio-Chemical Journal* for April 26th Dr. E. Wace Carlier describes some aspects of the physiological action of allyl isothiocyanate, a substance which within the past few years has received some attention as a therapeutic agent. In the form of oil of mustard it is widely used as a rubefacient and counter-irritant. It is much more toxic than allyl sulphide, as was found by comparative experiments on animals. It attacks the respiratory system much more powerfully than the vaso-motor, though its effects pass off more quickly from the former than from the latter. Poisonous doses kill by paralysing the respiratory centre, as with allyl sulphide. The expiratory centre seems to be more affected than the inspiratory, resulting in considerable chest inflation. A tolerance is set up for the drug on the administration of repeated doses of the same strength, so that a stronger dose has to be given each time to produce an equal effect. By the first dose the vaso-motor centre is depressed and recovers but slowly, but from subsequent doses it not only recovers more quickly but is less affected and becomes stimulated, so that the blood pressure rises high above the normal. The minimum fatal dose is approximately one-fifth minim per kilogramme of body weight, while that of allyl sulphide is one-half minim, when injected into the jugular vein. Both allyl sulphide and allyl isothiocyanate act in a similar manner upon the organism, the latter being the more powerful. Both paralyse the respiratory and vaso-motor centres, both produce muscular spasms and affect the heart beat, and both lower the body temperature, as is the case with most essential oils. Neither is recommended by Dr. Carlier for internal administration, despite the fact that they are commonly ingested in minute quantities with food. In this connexion it is of interest to note that an introductory paper on the Use of Allyl Sulphide in Tuberculosis, by Dr. Paul Bartholow, appeared in the *New York Medical Journal* for May 22nd.

AT a meeting of the Physiological Society held at Oxford on June 26th, Professor F. Gotch, who presided on the occasion, after speaking in warm terms of Dr. Pavy's life-work, presented to him, in commemoration of the eightieth anniversary of his birth, a silver bowl bearing the following inscription: "Frederick William Pavy, M.D., F.R.S., May 29th, 1909. From the Physiological Society in token of affection and admiration."

Professor Ernest W. White, M.B. Lond., of Betley House, near Shrewsbury, late resident physician and superintendent of the City of London Asylum (1887–1905), has been elected Emeritus Professor of King's College, London (University of London), on retiring from the chair of psychological medicine after 20 years' tenure of the same.

THE King has given permission to Mr. Edward S. Crispin, Director of the Soudan Medical Department, Khartoum, to accept and to wear the Imperial Ottoman Order of the Osmanieh of the Fourth Class, which has been conferred upon him by the Khedive of Egypt in recognition of valuable services rendered by him.

THE London County Council on June 29th expressed its agreement with the report of a departmental committee on the London ambulance service, in favour of the extension of the service of rapid ambulances for non-infectious cases initiated by the Metropolitan Asylums Board.

THE DARWIN CENTENARY.

(*Concluded from p. 1870.*)

THE celebration of the centenary of Charles Darwin, which took place last week at the University of Cambridge, did not come to a conclusion until Thursday afternoon, by which time we had gone to press. The proceedings, however, on Thursday were every whit as interesting as those of Tuesday and Wednesday.

In addition to the addresses which we published last week the following three addresses were presented by Dr. Norman Moore, Senior Censor of the Royal College of Physicians of London, Sir Henry Morris, President of the Royal College of Surgeons of England, and Dr. Norman Moore, for the President of the Royal Society of Medicine, respectively, to the University of Cambridge on the occasion. They will be read with interest, showing, as they do, the intimate association of Darwinian research with the progress of medicine and surgery, as well as the close connexion between Darwin personally and the medical profession.

The Royal College of Physicians of London to the Chancellor, Masters, and Scholars of the University of Cambridge, greeting:—

We, the President and Fellows of the Royal College of Physicians of London offer you our congratulations on the centenary of the birth of the illustrious Charles Darwin.

We have the honour of association with you in the lives of some of your most famous men of science. Caius and Gilbert and Harvey and Glisson were all Fellows of our College, and each of them was in his time chosen to its highest office.

Our College, founded in 1518, was the earliest scientific society of England. Its Fellows have had a considerable part in the advancement of Natural Science studies, and the collections of our President, Sir Hans Sloane, were the beginning of the British Museum. Thus we belong to the world of Natural Science as well as to that of our own profession, and we have felt profoundly in our particular studies the impulse which the publication of the "Origin of Species" and the subsequent work of Darwin gave to Natural History and to every subject in any way related to it. We admire his

generous character as well as his devotion to the elucidation of the problems of Biology, and we join the University most cordially in commemorating so great and so virtuous a man.

We have desired our Senior Censor to present this address to you.

R. DOUGLAS POWELL, President.

June 16th, 1909.

An Address from the Royal College of Surgeons of England to the Chancellor, Masters, and Scholars of the University of Cambridge:—

The Council, Fellows, and Members of the Royal College of Surgeons of England experience in a very special degree a deep sense of gratification in having been honoured by an invitation to send a delegate to the Commemoration by your University of the Centenary of Charles Darwin's birth and the fiftieth anniversary of the publication of his great epoch-marking work "On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life."

We feel a peculiar, indeed an almost personal and certainly a professional, pride in taking part with your great Commonwealth of learning and knowledge as a whole, and with Christ's College and the Faculty of Natural Sciences in particular, in this In Memoriam celebration of one who in so conspicuous and brilliant a manner added lustre to your great and ancient University.

The numerous and intimate personal and family associations of Charles Darwin with the University of Cambridge are equalled by similar connexions with the profession of medicine. We are mindful that his grandfather, the celebrated scientist and poet, Dr. Erasmus Darwin, was a physician at Lichfield, and afterwards at Derby; that his father was a very successful medical practitioner at Shrewsbury; that his only brother was a Bachelor of Medicine of Cambridge; and that his paternal uncle and he himself were intended for the medical profession, and actually studied physic at the University of Edinburgh.

The sciences to which Charles Darwin devoted his life and on which he built his great generalisations are, some of them, ancillary to medicine; and as developed and interpreted by him they transfigured many of the doctrines and classifications of disease, illumined with new conceptions pathology as well as biology, and opened up fresh avenues of thought and new pathways of investigation leading to a more correct and scientific knowledge and practice of the resources of surgery.

To the Museum of our College Charles Darwin presented about 30 valuable specimens of fossil mammalia collected by him during the voyage of the *Beagle*, a fact which may not be generally known.

To the students of medicine, as well as to the students of general biology, Darwin has left on record a caution of the utmost importance, and at no period more than at the present time have they had greater need to be reminded of it. He tells in his autobiographical recollections how his neglect of dissecting when a student in Edinburgh "proved one of the greatest evils of my life;" how the anatomical knowledge and aptitude he would have gained by the practice of dissection would have been invaluable for all his future work; and how the want of these, and his incapacity to draw, had been an "irremediable evil," and that "a great pile of manuscript" which he had made during the voyage of the *Beagle* had in consequence "proved almost useless." Charles Darwin esteemed it a high honour to have been elected an honorary member of the Royal Medical Society of Edinburgh and an original honorary member of the Physiological Society which was founded in London in 1876. By his efforts to forward legislation on the question of vivisection, by his private communications to physiologists and others, and by his letters to the editor of the *Times* "on the right of experimenting on living animals," he showed the righteousness as well as the wisdom of his judgment by denouncing the practice of vivisection for "mere damnable and detestable curiosity," whilst he endeavoured to obtain "justice to science," and gave proof of his willingness to bear his "share of the abuse poured in so atrocious a manner on all physiologists." Though, in his own words, "Hippocrates had taken the wind out of my sails," though when informed of the views on pangenesis of this philosopher of antiquity Charles Darwin admitted they seemed almost identical with his own, and although theories somewhat akin to those of the "Origin of Species" had been advanced by Buffon, Lamarck, and Erasmus Darwin, and the principle of natural selection had been enunciated by Dr. Wells and Mr. Matthews, yet the central hypothesis of the "Origin of Species" came in 1859 as a revelation to the historians of scientific ideas as well as to all the biological specialists then living. Charles Darwin knew that he was regarded as "the greatest revolutionist in natural history of that, if not all centuries," and he naturally yearned for some half dozen great and sound scientists to accept his views, for then he would have no fear of their ultimate success.

And whose were the opinions he most especially valued and "longed to learn"? They were those of J. D. Hooker, Charles Lyell, Huxley, Richard Owen, W. B. Carpenter, Milne-Edwards, and Asa Gray, every one of whom except Sir Charles Lyell had received a medical education and was the holder of a medical degree or other medical qualification. Two of them, Huxley and Owen, had been intimately associated with the Royal College of Surgeons of England, Huxley as a Member of the College and Hunterian professor, and Owen as a Member and Fellow of the College and Hunterian professor and conservator of the Hunterian Museum for many years. Hooker and Huxley were the most sympathetic exponents and staunchest champions of the Darwinian principles, and if Owen never actually expressed a definite opinion of Darwinism he at least inclined to the theory of "natural selection," and conduced to the writing of a letter in which Charles Darwin evinced a candour, a modesty, a tolerance of disagreement, and an indifference to the claims of priority which so supremely characterised him throughout his whole scientific career.

It is interesting to us who are connected with the College of Surgeons to re-call that in 1859 Owen delivered the Rede lecture at Cambridge—his subject being the "Classification of Mammalia"—and that he then received the degree LL.D., thus becoming the recipient of the first honorary degree ever conferred by this University. Also in the same year the remains of John Hunter, the great founder of scientific surgery, the fruits of whose labours will for all time be the chief glory of our College, were removed from the vaults of St. Martin's-in-the-Fields to Westminster Abbey. If, instead of the re-interment of the body—lifeless for 60 years—Hunter could have been restored to life in this world, it is only reasonable to conclude from the opinions expressed in several of his writings that he would have greeted the "Origin of Species" with great delight, and would have given it the readiest and fullest acceptance.

For these amongst other more general reasons does our College, with special zest and gladness, beg to offer to the University our best wishes for the success of these memorial ceremonials, and to thank her for affording us the pleasure and satisfaction of joining with the representatives of the liberal arts and sciences from all parts of the world in this tribute of honour to the name and fame of one of her most illustrious sons.

HENRY MORRIS, President.

The Royal Society of Medicine to the Chancellor, Masters, and Scholars of the University of Cambridge, Greeting:—

We, the President, Fellows, and Members of the several sections of the Royal Society of Medicine congratulate the University of Cambridge on the occasion of the centenary of the birth of Charles Darwin. The glories of your University in Science were already brilliant when this great luminary appeared. Newton, greatest of all men of Science, had explained the order of the Universe, and Harvey, in the Microcosm of Man, had demonstrated the course of the circulation. Gilbert had discovered the magnetism of the earth, Woodward had laid the foundations of Geology, and Ray had taken the first steps in the systematic arrangement of animals and plants, while the whole circle of scientific thought had been influenced by that philosopher of whom your immortal Dryden says—

> "The world to Bacon does not only owe
> Its present knowledge but its future too."

Amid such a galaxy it might well seem difficult for any orb of equal brightness to shine forth, yet in Natural History and in every science related to it, it may be doubted whether

any man, since the time of Aristotle, has had a greater effect upon the course of study than Charles Darwin.

That so many of these your most illustrious men of science have been members of the profession of Medicine is sufficient to show how closely its practice and the investigations of Disease are bound up with every other science, and on this auspicious occasion we and all members of our profession rejoice to remember that the great man in whose celebration you have asked us to take part was descended from two generations of doctors of Medicine. Charles Darwin's mind may be said to have thus inherited that desire—

Rerum cognoscere causas—

which pervades our profession.

In common with the whole world of science we offer you our congratulations and join with you in remembering Charles Darwin with gratitude.

WILLIAM S. CHURCH.

On Thursday morning the Chancellor conferred the degree of Doctor of Science upon numerous famous men of science, many of whom had worked along paths which had been made possible by Darwin's great discoveries and achievements. The particular contributions of most of them to scientific knowledge will be familiar to our readers. When the Congregation was declared open, the Public Orator, Dr. J. E. Sandys, presented those about to receive the degree to the Chancellor in felicitous language, some of the topical remarks displaying very ingenious Latinity and being received by those who were fortunate enough to take the allusions with applause and laughter. The recipients of the degrees were presented in the following order: Prince Roland Bonaparte, Professor Edouard van Beneden, Professor Geheimrat Hofrat Otto Buetschli, Professor Robert Chodat, Mr. Francis Darwin, Professor Karl F. von Goebel, Professor Ludwig von Graff, Professor Richard Hertwig, Professor Harold Hoeffding, Professor Jacques Loeb, Dr. Edmond Perrier, Professor Gustav Albert Schwalbe, Professor Hermann Graf zu Solms-Laubach, Professor Clement Timiriazeff, Professor Frantisek Vejdovsky, Professor Max Verworn, Professor Herman Vochting, Professor Hugo de Vries, Dr. Charles Doolittle Walcott, Professor Edmund Beecher Wilson, and Professor Charles Renne Zeiller.

The presentation of the degree to Mr. Francis Darwin was made the opportunity of a remarkable reception to Darwin's distinguished son, alike on the score of his paternity, of his special scientific work as one of the most distinguished morphological botanists in the world, and of his personal popularity. The presentation of Professor de Vries was also made the subject of special applause, a notable incident, as Professor de Vries' work on mutation has been sometimes, but too narrowly, regarded as antagonistic to Darwin's position.

The Rede Lecture, which followed, was delivered by Sir Archibald Geikie, President of the Royal Society, who addressed his audience upon Darwin as a geologist. After a rapid survey of the position of geology before Charles Lyell published in 1830 his "Principles of Geology," in which the changes of the earth's surface were referred mainly to causes now in action instead of to catastrophic happenings in the past, the lecturer went on to show how Darwin's work had added to our knowledge of the movements of the terrestrial crust, and had furnished at the same time evidence in detail of the influence of various natural agencies in producing profound alterations in the conformation of the globe. He considered that the geology of the "Origin of Species" formed a most valuable contribution to the philosophy of the subject, and he claimed Charles Darwin as a master of geological science.

With the Rede lecture the formal celebration of the Darwin Centenary came to a close, and on all hands it was allowed that the University of Cambridge had honoured herself in the way in which she had done honour to her distinguished son. Of course, an ancient university with its time-honoured stately buildings makes a perfect background for a pageant, while the gorgeous academic costumes, survivals of mediæval habit, turn contemporary mortals for the time being into adequate imitations of their forefathers, and make them fit the landscape as well as adorn it. Full advantage was taken of the natural opportunities of Cambridge for doing justice to such an occasion, while the organisation of the various functions was a model of completeness and smooth working.

THE RESEARCH DEFENCE SOCIETY.

THE annual meeting of the Research Defence Society was held at the rooms of the Royal Society of Medicine, 20, Hanover-square, on June 25th, when Lord CROMER presided and delivered an address to a representative and interested audience. Letters of regret for their unavoidable absence, and of sympathy with the objects of the society, were read from Sir T. Clifford Allbutt, Sir Lauder Brunton, Mr. Sydney Holland, Dr. J. Hughlings Jackson, Sir Henry Morris (President of the Royal College of Surgeons of England), Mr. John Lentaigne (President of the Royal College of Surgeons in Ireland), Sir Frederick Treves, Sir Norman Lockyer, Sir L. Alma Tadema, Lord Robert Cecil, Lord Northbrook, the Duke of Wellington, and Lord Curzon.

Lord CROMER said that the Research Defence Society could not attempt to emulate, and still less to rival, the proceedings of those who thrilled the minds of the public with the imaginary tortures inflicted on a brown dog. "The society does not plaster the railway stations of the metropolis with caricatures of Mr. Stephen Coleridge and his allies. These things must be left to our opponents. On the other hand, our movement must appeal to the great body of our countrymen and countrywomen in the interests of humanity." The speaker very strongly held the opinion that those who believed in vivisection, and not those who opposed it, were acting in the true interests both of the human and of the animal race. It might well be that in some rare instances, physiologists, carried away by the excitement of the struggle in which they were engaged, lost sight of that aspect of the question to which the more moderate members of the anti-vivisection societies very rightly and naturally wished to draw attention. It was well, therefore, that the physiologist, in conducting his experiments, should always remember that he was acting in the presence of the enemy, and that his critics would be little inclined to show him mercy should he inadvertently pass the line which separated the infliction of suffering which was justifiable from that which could not be justified. Nothing was more difficult than to draw this borderline. Every man who went out shooting, hunting, or fishing; every man or woman who wore a fur coat; every lady with the plumage of some beautiful bird in her hat was directly or indirectly the cause of death or suffering to animals. More than this, every individual who ate meat caused not merely animal death but was indirectly responsible for the cruel operations which were performed on sheep and on bullocks in order to render their flesh more tender. If it was justifiable to inflict death and pain on animals in any circumstances, surely the justification assumed the form of absolute proof when death or pain was inflicted in the interests of humanity. If anyone would take the trouble to read the voluminous evidence presented to the Royal Commission on Vivisection, whose report he (Lord Cromer) most earnestly trusted would soon be issued, it would be found that there was not a single alleged case of extreme and unnecessary cruelty brought forward by the Anti-Vivisection Society which did not hopelessly break down under cross-examination. It was very natural that this should be the case, not merely because the fact of a man being a physiologist in no way debarred him from entertaining those feelings of sympathy towards the animal world which were felt by every civilised human being, but because, putting the matter on much lower ground, the struggles of an animal in pain tended to nullify the accuracy of the experiment which was being conducted, and thus rendered abortive the experiment. This point had been clearly brought out in a very eloquent manner recently by that eminent French physiologist, Dr. Charles Richet. It was not pretended that suffering, whether by inoculation or vivisection, was not inflicted on animals, but it was asserted by the society that the suffering was reduced to a minimum—to the irreducible minimum justified by the results which are obtained. The antiseptic method had reduced the mortality in lying-in hospitals from as much as 40 per cent. to 0·2 per cent. It was the direct outcome of the experimental method. "I would ask," continued Lord Cromer, "if the lives of the rabbits sacrificed by Villemin in 1864 and Koch in 1878 are to be weighed for one moment in the balance in comparison with the marvellous discoveries in connexion with tuberculosis made by those eminent physiologists? These discoveries have created nothing less than a revolution in social hygiene, and in this country have

reduced the mortality on account of this terrible disease by 50 per cent. Moreover, as a consequence of this discovery Koch was able to discover tuberculin, by the use of which it is possible to ascertain whether cows are tuberculous or the reverse. It would be difficult to exaggerate the importance of this discovery. But perhaps the most striking instance is that of the application of sero-therapy to diphtheria. One has only to study the figures both in London and in Paris to be assured of the fact that since the introduction of anti-toxin the mortality through this terrible disease has been enormously reduced. Again, as a direct result of the experimental method, Malta fever has been extinguished. The naval and military hospitals, Sir David Bruce reports, are almost empty, and the island has become the healthiest of garrisons. Formerly, this severe and dangerous disease accounted annually for 75,000 days of illness. The researches of two eminent American physiologists, Dr. Simon Flexner and Dr. J. A. Jobling, have enabled the mortality from that terrible complaint, cerebro-spinal meningitis, to be reduced by more than 50 per cent. Do not these striking results speak for themselves?" Lord Cromer concluded by referring to the cancer problem, with regard to which bacteriologists were constantly being taunted because they had not yet discovered a cure; and in this connexion he quoted Dr. James Ewing, professor of pathology at the Cornell University Medical College, who said on this subject: "What is the reason why medical science has always branded this field as a barren territory? It is because the method of study by means of animal experimentation was not thought applicable to the subject of cancer. Diphtheria has been cured, because we can reproduce the disease in animals, study its progress under controllable conditions, and test for its cure the antitoxic agents prepared according to the accepted theories of the laboratory. None of these methods was thought applicable to cancer." Professor Ehrlich, the leader of German cancer research, had said that the beginning of the end of the cancer problem was in sight, and Dr. Ewing points out that the consummation may be delayed or not according to the attitude of the public towards the experimental method in medical and biological research. "It is to my mind," said Lord Cromer, "almost inconceivable that any body of thinking men and women can hesitate for one moment to sacrifice the lives of a certain number of mice, rabbits, and rats if the least chance exists of eventually finding a remedy for this terrible scourge—a scourge, be it remembered, which not only causes death, the lot of all, but kills the victim under conditions of pain infinitely greater than that inflicted by any experimentalist in his laboratory."

The report of the committee for the year 1908–09, which was read by Mr. STEPHEN PAGET, was as follows:—

Your committee are glad to be able to report that the society has made good progress during the past 12 months. At the time of our inaugural meeting, in June of last year, we had 1290 members, of whom 123 were ladies. We have now 2465 members and 61 associates, making a total of 2526, of whom 361 are ladies.[1]

At the time of our inaugural meeting we had no branch societies. Branches have now been formed in Birmingham, Bournemouth, Brighton, Cambridge (University Branch), Dublin, Edinburgh, Glasgow, Liverpool, Manchester, Newcastle, Shrewsbury, Torquay (Devon Branch), and York. Other branches in Oxford, Ryde, and elsewhere, are in course of formation.

In the United States, the work of our society has been followed with great interest by many well-known American physicians and surgeons, and a thorough system of research defence has been organised in New York, Boston, and elsewhere, after the example of our society.

The educational work of the society during the past year has been considerable. Beside a great number of letters and articles in newspapers and magazines, a further series of pamphlets has been published, by the kind help and generosity of Mr. Frederick Macmillan. Early in the winter we issued a paper-bound set of 11 pamphlets, which was sent to each new member, and to many hundreds of public libraries, schools, clubs, and other institutions. In April of this year we published a cloth-bound volume, entitled "Publications of the Research Defence Society," containing four pamplets hitherto unpublished, with eight of the pamphlets already issued. This book has been very favourably reviewed by the press, and a large number of copies has been circulated. ..... During the past year representatives of the society have attended many debates in London and elsewhere, and the results have been very satisfactory. Many sets of pamphlets have also been sent to persons wishing to speak in debates. Many lectures have also been given, most of them illustrated with lantern slides, by Dr. Morgan Jones, Dr. Armit, Major Elliott, Mr. Hodgson, Dr. Duke Turner, and the Hon. Secretary. These lectures, with such titles as "Pasteur's Life and Work," or "Some Modern Ways of Fighting Disease," or "What we Owe to Experiments on Animals," have been given at Cambridge, Oxford, Eton, Radley, Dulwich College, King Edward School, Birmingham, Bedford College for Women, London School of Medicine for Women, Royal Naval Academy, Bognor, Chiswick, Ealing, Croydon, Purley, Ilford, Chelmsford, Bournemouth, Shrewsbury, Exeter, York, and elsewhere. Several of these lectures have been very largely attended, and your committee are of opinion that popular lectures of this sort are of great value to the society's work. Several engagements have already been made for the coming winter, but more are desired, and your committee beg that any member who can spare the time and the trouble to arrange for such a lecture, either in London or elsewhere, will communicate with the honorary secretary.

Other events of the past year are as follows: The anniversary of the founding of our society, on Jan. 27th, 1908, was celebrated by the inaugural meeting of the Dublin branch society, last January, in the theatre of the Royal Dublin Society; this meeting was attended by 700 persons, and the Dublin branch society has already, thanks to Sir Henry Swanzy and Mr. J. W. Tullo, who are its honorary secretaries, more than 500 members. In March of this year your committee decided that there should be associates of the society, who should pay a subscription of only 1s. a year. It is hoped that they will help to make the work of our society more widely known and appreciated, and it has been suggested that many hospital patients who owe their health or their life to methods discovered by the help of experiments on animals may be glad to be thus associated with the Research Defence Society. Last month a letter signed by your President, your chairman of committee, and twenty-one of your Vice-Presidents was forwarded to the Home Secretary, urging him to use all his influence to hasten the issue of the final report of the Royal Commission. It is a matter of great regret that the issue of this report has been so long delayed. The delay is contrary to the public interest and is likely to prejudice the public mind.

[1] The exact number on the day of the meeting was 2560 members and 61 associates, making a total of 2621, of whom 374 are ladies.

Dr. F. M. SANDWITH having read the financial statement and announced the first legacy to the society—namely, a gift of £1000 bequeathed by the late Dr. John Hall—

Sir JAMES DEWAR moved the adoption of the report. He lamented the lack of interest which was taken by the public in the borderland between physiology and chemistry. He instanced the coal tar industry and said that this country little understood what Germany was doing to stimulate the investigation of new chemical products. Each factory had its own laboratory as thoroughly equipped as any English or Scotch University. German firms knew quite well that research of the kind to which he referred, however expensive in the initial outlay, would eventually repay them a hundredfold. The large number of chemical and physiological substances which had thus been produced were of the most serious import to medical knowledge at large as well as to the art of dispensing. The properties of these products had to be examined physiologically as well as chemically, and on these products much of our future well-being might depend. Experimentation upon animals had become an absolute necessity for the future extension of such knowledge. There was no other method of attaining that knowledge. If we were forced to this conclusion it was not because we were unable to sympathise with pain but because of the calls of inevitable duty. He noticed from the annual report of experiments on animals that only 6 per cent. of the experiments were made in regard to enzymes and drugs. The percentage of such experiments made in another country would be found to be far larger. He concluded with an earnest plea for greater stimulation of inquiry into the physiological properties of chemical bodies, adding that experimentation on animals must go on in order to obtain knowledge which could not be obtained in any other way.

Sir A. CONAN DOYLE seconded the adoption of the report. He said that it was not science but only common sense that was required to decide whether experiments should be made, and the question whether human beings or animals should be selected for experiment carried with it its own answer. He referred to a lurid picture exhibited at some railway stations, and said that if he possessed the original block from which the picture was made he would leave in all the present details but would have depicted in addition on one side of the picture a poor mother leaning over her child who was dying from diphtheria or some other preventable disease. Under the picture he would put, "Which is it to be?" He might also add these three questions: 1. Which should perish—the lower or the higher organism? 2. Which is better—that one should die, or that tens of thousands should find a mode of life? 3. Which is better—that one should perish painlessly under chloroform or that many should die in the agonies of long-drawn-out disease?

The report was then unanimously adopted.

The Hon. WALTER GUINNESS, M.P., in moving a vote of thanks to the chairman, pointed out the valuable work which the society could do in forestalling the attacks of its opponents, and remarked that Lord Cromer was a most valuable asset to the society not only on account of his great prestige but also on account of the personal interest which he took in the work of the society.

Professor STARLING seconded the motion and the vote was heartily accorded.

The CHAIRMAN then briefly replied and the meeting terminated.

Looking Back.

FROM

THE LANCET, *SATURDAY*, July 2nd, 1831.

CASE OF HAY FEVER.

To the Editor of THE LANCET.

SIR,—Having noticed in your valuable Journal, some remarks by Dr. Elliotson on *hay-fever*,[1] I beg you to accept the account, or as much of it as I remember, of a case which came under my observation some three or four years ago, during my apprenticeship at Paris. A gentleman called, stating he wished to see my master, as he was suffering from a severe attack of the hay-fever. The term was quite new to my ears, and I thought it must either be the result of fancy or the mistaken name of a complaint. When my master saw him, he found symptoms much resembling slight spasmodic asthma, with tolerably easy expectoration, and a great deal of nervous irritability of the system, the patient appearing to be rather a hypochondriacal subject. He stated that he generally had an attack once a year, about the hay-making season, which lasted a fortnight or three weeks, and that the last seizure occurred suddenly whilst he was travelling from Italy. There was no grass to be seen about the immediate spot, but on proceeding a mile farther he found some people mowing, to which circumstance he immediately attributed the attack. He said that he was always better in a neighbourhood where there was little grass, and never had an attack in the winter. During his passage through Normandy, where the land is chiefly meadow, he had been a dreadful sufferer. The medicine prescribed was infusion of valerian, to which, I believe, a little tr. sennæ was added. He was relieved by this, and continuing to mend on the medicine, at the end of a week stated himself to be quite well. If Dr. Elliotson can glean any instruction from this case, I beg to say he is most welcome to it. I am, Sir, your obedient servant,

AUGUSTUS PRATER.

[1] In THE LANCET of June 18th, 1831, a clinical lecture by Dr. Elliotson was reported. In the course of the lecture Dr. Elliotson requested his audience to give or procure him any information respecting "a very extraordinary affection that I have once only had occasion to treat." "It is what is called *hay-fever* or *hay asthma*." "The first time I ever heard of this disease was seven or eight years ago." "If the disease really prevails more now than formerly, and we observe it so frequently now not merely because its existence is notorious, this might perhaps be ascribed to the large number of new grasses which have of late years been introduced."

THE ROYAL SOCIETY CONVERSAZIONE.

THE second conversazione of the Royal Society, to which ladies are admitted, was held in the society's rooms in Burlington House, on Thursday, June 24th, when Sir Archibald Geikie, K.C.B., D.C.L., the President, received a very large number of distinguished Fellows and visitors. The exhibits were again of an interesting character though smaller in number, while certain of them were shown at the previous conversazione held on May 12th. Dr. A. D. Waller, for instance, repeated his demonstration of the electrical variation of the human heart and of the dog's heart on Einthoven's string galvanometer. Professor Norman Collie showed also again the peculiar glow which appears when neon is shaken with mercury, and Professor Sylvanus P. Thompson repeated his experiments illustrating the work done by rubber bands when heated, the contraction being sufficient in some cases to raise a pound weight.

Amongst the other exhibits, mention may be made of Dr. W. N. Shaw's interesting observations by means of experimental balloons of the temperatures and pressures in the atmosphere up to a height of 15 miles. Messrs. Zeiss carried out a very beautiful experiment, in which they projected on the screen by means of a lantern and microscope the images of liquid crystals and of solid crystals formed from them. The most interesting example, perhaps, was that given by cholesterin acetate. Dr. F. W. Edridge-Green showed his spectroscope for estimating colour perception, by which the exact size of portions of the spectrum which appear monochromatic can be ascertained, and their varying size with different persons. A remarkably fine series of photographs of clouds and landscapes taken from a balloon was exhibited by Dr. W. J. S. Lockyer. Professor George H. F. Nuttall and Dr. Seymour Hadwen illustrated in a series of microscope slides the discovery of a curative treatment for malignant jaundice in the dog and for redwater in cattle. The effects of "trypanblau" upon the parasites were shown. It is stated that the results of treatment are so striking that field experiments promise to meet with success, and the observations made upon the parasites in animals undergoing treatment have thrown further light upon their biology. Mr. F. Enock showed some curious living stick insects. When mature these insects attain a length of over four inches and become of a brown colour which harmonises with the brown twig on which they rest. On emerging from the egg they are half an inch in length and quickly stretch themselves along a green twig which they exactly resemble.

There were no lantern demonstrations given in the lecture room, which hitherto have formed an attractive feature of the conversazione on "ladies' night," but the floral decorations on the ground floor and staircases were most lavish and beautiful.

LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

THE annual general meeting of this society was held at 31, Craven-street, Strand, London, on June 23rd, with Dr. G. A. HERON in the chair. In moving the adoption of the report, which was unanimously agreed to, the Chairman pointed out that the balance to the credit of the society amounted to £3917 and that the total resources of the society on Dec. 31st, 1908, were represented by a sum of £10,613. Taking the cash assets of the society into consideration he calculated it would be possible to pay at very short notice 17*s.* 1*d.* per head of the membership of the society. The Chairman and Council were accorded a vote of thanks for their services, which was passed with acclamation.

The annual report of the Council of the society for 1908 takes the form of a closely printed pamphlet of 84 pages and contains much that is of importance to members of the medical profession, especially in regard to matters referring to libel and slander, negligence or unskilfulness, notification of infectious diseases and births, and professional fees. A special committee of the society on the working of the Midwives Act sent in a report which is included in the annual report of the Council, recommending:—

That it should be clearly understood that no medical man should be expected to attend on the summons of a midwife unless he chose to undertake such work at the fees guaranteed by the guardians, or others.

That the fees of medical men summoned by midwives should be paid to them in all cases without requiring from them any proof of the poverty of the patients, any necessary inquiry being made by the board of guardians or others, who should pay the fees of the medical practitioners without demur, and then take such steps as they might think fit to recover the fees when the patients were able to pay them.

That when a medical man is summoned by a midwife to operate or attend on a woman in a serious emergency, he should be the judge as to whether or not he should visit the patient again, and, if so, how often, and that for these visits the doctor should be entitled to the usual fees in addition to the fee for the operation or attendance.

A charge of unprofessional conduct against a medical man is particularly difficult to deal with, and the following example of such a case is interesting and instructive. A member of the society was called to see a patient staying at a hotel who was suffering from slight hæmorrhage after tooth extraction. She would not let the medical man take his own course to stop the bleeding, and after wasting about an hour there he did what he could but told the patient he would not come again to attend her. Subsequently, however, the medical man received very urgent appeals from a male friend of the patient, and at last consented to attend on the representation that the patient's life was in danger. When he sent in his account he received a letter from the patient saying that she considered his account not due, inasmuch as he unskilfully and ineffectually attended to her and refused to call when she instructed him to come. If he persisted in his claim she said she would place the matter in the hands of her solicitor. She had, she said, been advised to submit the whole matter to the Council of the Royal College of Surgeons and abide by its decision in the matter. This letter was answered on the member's behalf

and no more was heard of the suggestion of unprofessional conduct. Some of the most awkward instances in which advice was sought by members of the society are recorded in the annual report under the heading of professional secrecy, and are naturally connected with questions of pregnancy and venereal disease. The issue of the cases abundantly proves the value to its members of the society.

METROPOLITAN HOSPITAL SUNDAY FUND.

THE following are some of the principal amounts, additional to those already announced in THE LANCET, received at the Mansion House or notified directly to us as having been collected on behalf of the Metropolitan Hospital Sunday Fund up to Monday, when the sum paid in was about £28,000 :—

	£	s.	d.
St. Mary's, Bryanston-square	440	0	0
Holy Trinity, Sloane-street	410	0	0
St. Jude's, South Kensington	281	0	0
St. Paul's, Onslow-square	278	0	0
Chislehurst Parish Church and St. John's	265	0	0
All Saints', Ennismore-gardens	255	0	0
Sir Savile Crossley, Bart., P.C.	250	0	0
St. Peter's, Vere-street	210	0	0
St. John's, Paddington	206	0	0
Westminster Abbey	191	0	0
All Souls', Hampstead	178	0	0
Theistic Church, Swallow-street	175	0	0
Holy Trinity, Tulse Hill	161	0	0
Bickley Parish Church and Widmore Mission	142	0	0
Roehampton Parish Church	127	0	6
St. John's, Penge	115	0	0
Holy Trinity, Sydenham	112	0	0
All Saints', Margaret-street	101	0	0
Brixton Independent Church	97	0	0
Christ Church, Chislehurst	93	0	0
St. Mark's, Hamilton-terrace	92	0	0
St. Matthew's, Bayswater	87	0	0
St. Mary's, Kilburn	85	0	0
St. Andrew's, Wells-street	84	0	0
St. James's, Paddington	81	0	0
St. Barnabas's, Addison-road	79	0	0
St. John's Presbyterian, Kensington	76	0	0
Blackheath Congregational Church	75	0	0
St. Paul's, Upper Norwood	73	0	0
Immanuel, Streatham	70	0	0
Regent's-square Presbyterian Church	68	0	0
St. James's, Muswell Hill	66	0	0
St. Augustine's, Kilburn	62	0	0
St. Michael's, Blackheath	61	0	0
St. Anne's, Soho	60	0	0
St. Stephen's, Ealing	60	0	0
Rosslyn Hill Church, Hampstead	60	0	0
St. Mary Boltons	59	0	0
Stoke Newington Parish Church	58	0	0
St. John's, Bromley	58	0	0
Brompton Oratory	58	0	0
Brixton Circuit	56	0	0
Lemsford Parish Church	56	0	0
Christ Church, Beckenham	54	0	0
St. Saviour's, Ealing	53	0	0
Bromley, Kent, Congregational	52	0	0
Chapel Royal, St. James's	49	0	0
Wanstead Churches	49	0	0
St. Luke's, Balham	48	0	0
Chapel Royal, Hampton Court	48	0	0
Hornsey Parish Church	46	0	0
St. Stephen's, Portland Town	46	0	0
Grosvenor Chapel	46	0	0
St. Mary Aldermary	45	0	0
Christ Church, Brondesbury	44	0	0
St. James's, Hatcham	44	0	0
St. Cuthbert's, West Hampstead	44	0	0
St. Alban's, Streatham	42	0	0
Ascension, Blackheath	41	0	0
St. Paul's, Harringay	40	0	0
Metropolitan Tabernacle	40	0	0
St. Germain's, Blackheath	38	0	0
St. Mark's, North Kensington	38	0	0
Carmelite Church, Kensington	38	0	0
Highgate Presbyterian	37	0	0
St. Andrew's, Kingswood	37	0	0
Ealing Parish Church, with All Saints	35	0	0
St. Matthias's, Earl's Court	35	0	0
Christ Church and St. Andrew's, Southgate	35	0	0
Potters Bar Churches	35	0	0
St. Mary's, West Kensington	35	0	0
St. Mary Magdalen's, Wandsworth Common	34	0	0
St. Mary's, Balham	34	0	0
Orpington Churches	33	0	0
St. Mary's, Munster-square	33	0	0
Christ Church, Forest Hill	32	0	0
Holy Trinity, Beckenham	32	0	0
Islington Parish Church	32	0	0
Holy Redeemer, Stoke Newington	31	0	0
St. Paul's, Wimbledon Park	31	0	0
St. Saviour's, Denmark Park	31	0	0
St. John's, St. John's Wood	31	0	0
St. Thomas's, Streatham	31	0	0

MEDICINE AND THE LAW.

Destruction of Infected Articles by Medical Officer.

THE case of Farrell *v.* Longford urban district council, which came recently before Lord Justice Holmes in Ireland, raised an interesting point as to the destruction of infected property by a medical officer of health. It was an appeal from a decision of his honour Judge Curran, K.C., for £20 damages in an action by Mrs. Sarah Farrell against the Longford urban district council for trespass and for burning and destroying clothing, furniture, bedding, and household effects, the property of the plaintiff. Neither the Infectious Disease (Notification) Act, 1899, nor the Infectious Disease (Prevention) Act had been adopted. The plaintiff kept a lodging house, and in April, 1908, a woman who lodged in the house became ill and was pronounced by Mr. N. Mayne, who attended her, to be suffering from cerebro-spinal meningitis. Mr. Mayne sent to Dr. M'Cann, the medical officer of health of the district, a certificate to the effect that the woman was suffering from that disease, and Dr. M'Cann, considering the matter to be of extreme urgency, without notifying either the executive sanitary officer or the sanitary authority, ordered the immediate disinfection of the house and the removal and destruction of all the furniture, clothing, and other articles therein, which order was carried out by the sub-sanitary officer. It subsequently transpired that the case was not one of cerebro-spinal meningitis or other infectious disease. The plaintiff having claimed a sum of £72 for compensation, the defendants denied liability on the ground that the acts complained of were not done by their authority or with their knowledge and approval. The sub-sanitary officer valued the clothing destroyed at £20 6*s.*, and the county court judge gave a decree for £20. From this decision the defendants appealed. Section 137 of the Public Health (Ireland) Act, 1878, provides for the disinfecting of premises by a sanitary authority on the certification of their sanitary officer or other legally qualified medical practitioner. Section 138 provides that the sanitary authority may direct the destruction of bedding, clothing, or other articles and give compensation for the same. It is the sanitary authority and not the medical officer of health who must order the destruction of articles. Section 274 provides that any dispute as to the fact of damage or amount of compensation shall be settled by arbitration in manner provided by the Act, or if the compensation claimed does not exceed the sum of £20 the same may, at the option of either party, be ascertained by and recovered before a court of summary jurisdiction. Lord Justice Holmes in the course of his judgment said: "There are two points in this case. I am disposed to think that there could not be a full delegation of authority to the medical officer, giving him absolute discretion. If that were done it would be a violation of the statute, because the urban district council are an elected body with statutory powers. On the other hand, in a particular case there might be an exercise of authority by the medical officer representing the sanitary authority and adoption by the sanitary authority. From what the counsel for the plaintiff stated, it is possible that I might, if I had heard the evidence of Dr. M'Cann, have come to the conclusion that in this case the sanitary authority did adopt the action of the medical officer. But the other point is, that there is a particular method of ascertaining the damages pointed out by the statute, and, as far as I am aware, that procedure is always adopted throughout the country. That method is not litigation, but arbitration, except in cases where a small amount is claimed, when proceedings may be taken before county summary jurisdiction. I do not know if there is any limit of time, but the plaintiff may still be able to proceed by arbitration. I do not, however, decide that question. I therefore reverse the decree and dismiss the action with costs. I think the sanitary authority might very well not levy the costs."

Conviction of an Abortionist.

William Arthur Jones, William John Lidstone, and Caroline Farmer were tried and convicted at the recent sessions at the Central Criminal Court, the first-named for performing an illegal operation upon Beatrice Dean, and the other two for aiding and abetting him. Dean, employed by Lidstone as a domestic servant, was taken by him to Farmer

when he found that she was with child, and by Farmer was introduced to Jones, who, under the title of "Dr." Jones, apparently was well known in Walworth. The confession of Dean to the police enabled proceedings to be taken, and upon Jones being convicted evidence was given that he had once been upon the Medical Register, but had been removed in 1902 after a conviction for a similar offence. There were other indictments against him, but these were not proceeded with, and Mr. Justice Jelf, after observing that Jones was a man whom it was desirable to get rid of for a long time, passed upon him a sentence of ten years' penal servitude. Lidstone, who received a good character from the police, was sentenced to three months' imprisonment in the second division, and Farmer, described as a respectable married woman, was bound over to come up for judgment if called upon to do so.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 7520 births and 3801 deaths were registered during the week ending June 26th. The annual rate of mortality in these towns, which had not exceeded 12·6 and 12·3 per 1000 in the two preceding weeks, further declined to 12·1 in the week under notice, and was lower than the rate recorded in any previous week of this year. During the first twelve weeks of the current quarter the death-rate in these towns averaged 14·2 per 1000; the mean rate in London during the same period did not exceed 13·7. The lowest recorded annual death-rates in these towns last week were 4·9 in Ipswich, 5·2 in Willesden, and 5·6 in East Ham and in Devonport; the rates in the other towns ranged upwards, however, to 17·3 in Middlesbrough, 18·6 in South Shields, 19·5 in Great Yarmouth, and 19·6 in Oldham. In London the recorded death-rate last week did not exceed 12·1 per 1000. The 3801 deaths from all causes in the 76 towns last week showed a further decline of 79 from the decreasing numbers in recent weeks, and included 352 which were referred to the principal epidemic diseases, against 393 and 364 in the two previous weeks; of these 352 deaths, 159 resulted from measles, 63 from whooping-cough, 57 from diarrhœa, 34 from diphtheria, 28 from scarlet fever, and 11 from "fever" (principally enteric), but not one from small-pox. The 352 deaths from these epidemic diseases last week were equal to an annual rate of 1·1 per 1000, against 1·2 in each of the two preceding weeks. No death from any of these epidemic diseases was registered last week in Leicester, Croydon, Oldham, Tottenham, Halifax, or in seven other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·4 in Norwich, 3·9 in Stockton, 4·5 in Salford and in Bootle, and 5·5 in Wolverhampton. The fatal cases of measles in the 76 towns, which had been 186 and 173 in the two preceding weeks, further declined to 159 last week; the fatal cases of this disease caused annual death-rates last week ranging upwards to 2·9 in Stockton-on-Tees, 3·0 in Salford, 3·4 in Norwich, and 5·0 in Wolverhampton. The 63 deaths from whooping-cough showed a further slight increase upon the numbers returned in the two previous weeks, and caused an annual rate equal to 1·5 per 1000 in Middlesbrough. The 57 deaths attributed to diarrhœa exceeded the number in any recent week; the deaths from this cause were proportionately most numerous in Portsmouth and Bootle. The 34 fatal cases of diphtheria exceeded the number in the previous week by six and included five in Manchester and Salford, three in Portsmouth, and two in Hull. The 28 deaths from scarlet fever showed a decline of 27 from the number in the previous week, but included nine in London and its suburban districts and four in Manchester and Salford. Only 11 deaths from "fever" were registered last week in the 76 towns, against 13 and 16 in the two previous weeks. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, which had been 2228, 2263, and 2445 at the end of the three preceding weeks, had further increased to 2517 on Saturday last; 368 new cases of this disease were admitted to these hospitals during last week, against 305 and 468 in the two preceding weeks. The registered deaths in London referred to pneumonia and other diseases of the respiratory organs, which had steadily declined in the four preceding weeks from 225 to 135, rose again to 155 in the week under notice, and exceeded by 13 the corrected average number in the corresponding week of the five years 1904–08. The 13 deaths in London directly referred to influenza last week exceeded the number in the previous week by seven. The causes of 43, or 1·1 per cent., of the deaths registered last week in the 76 towns were not certified either by a registered medical practitioner or by a coroner. The causes of all the deaths registered during the week were again duly certified in Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Salford, and in 51 other smaller towns; the 43 uncertified causes of death in the 76 towns included 13 in Liverpool and three each in Birmingham, Gateshead, South Shields, and Handsworth.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 926 births and 454 deaths were registered during the week ending June 26th. The annual rate of mortality in these towns, which had been equal to 16·3, 14·5, and 15·5 in the three preceding weeks, declined to 12·7 in the week under notice. During the first twelve weeks of the current quarter the death-rate in these Scotch towns averaged 16·2 per 1000, while in the 76 large English towns the mean death-rate during the same period did not exceed 14·2. The death-rates last week in these Scotch towns ranged from 8·5 and 10·3 in Perth and Aberdeen, to 18·3 in Leith and 19·7 in Dundee. The 454 deaths from all causes in the eight towns showed a decrease of 100 from the number returned in the previous week, and included 54 which were referred to the principal epidemic diseases, against 55 and 56 in the two previous weeks. These 54 deaths were equal to an annual rate of 1·5 per 1000, scarcely differing from the rates in recent weeks; the mean death-rate last week from these principal epidemic diseases in the 76 large English towns did not exceed 1·1 per 1000. Of the 54 deaths from these epidemic diseases in the Scotch towns, 18 resulted from diarrhœa, 17 from whooping-cough, eight from measles, six from diphtheria, and five from "fever," but not one either from scarlet fever or small-pox. The 18 deaths attributed to diarrhœa in the eight towns exceeded the number in any recent week, and included nine in Glasgow, three in Dundee, and two in Edinburgh. The fatal cases of whooping-cough, which had declined in the four preceding weeks from 40 to 18, further fell last week to 17, of which eight occurred in Glasgow, five in Edinburgh, and four in Aberdeen. The eight deaths from measles showed a decline of five from the number in the previous week, and included four in Paisley, against 10 in the preceding week. The six fatal cases of diphtheria, of which two occurred in Aberdeen, exceeded the number in the previous week by two. Five deaths in the eight towns were referred to "fever," of which two certified as typhus occurred in Dundee, one each of cerebro-spinal meningitis in Edinburgh and Aberdeen, and one of enteric in Glasgow. The deaths referred to diseases of the respiratory organs in the eight towns, which had steadily declined in the five preceding weeks from 109 to 73, further fell to 64 last week, and were three below the number in the corresponding week of last year. Of the deaths in the eight towns last week, 12 resulted from violence, including six in Glasgow and three in Edinburgh. The causes of eight, or 1·8 per cent., of the deaths in the eight towns last week were uncertified; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 1·1 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 18·7 and 15·7 per 1000 in the two preceding weeks, rose again to 19·6 in the week ending June 26th. During the first 12 weeks of the current quarter the death-rate in the city averaged 21·1 per 1000, whereas the mean rate during the same period did not exceed 13·7 in London and 15·9 in Edinburgh. The 150 deaths of Dublin residents from all causes registered last week showed an increase of 20 upon the low number in the previous week, and included eight which were referred to the principal epidemic diseases, against nine and ten in the two preceding weeks. These eight deaths were equal to an annual rate of 1·0 per 1000, the death-rate from these epidemic diseases in the same week being 1·1 in London and 1·5 in

Edinburgh. Of the eight deaths from these epidemic diseases in Dublin last week, five resulted from whooping-cough and three from diarrhœa, but not one either from measles, scarlet fever, diphtheria, "fever," or small-pox. The fatal cases of whooping-cough showed an increase. The 150 deaths at all ages included 31 of infants under one year of age and 33 of persons aged upwards of 60 years; the deaths of infants considerably exceeded the numbers in recent weeks. Six inquest cases and three deaths from violence were registered during the week; and 62, or 41·3 per cent., of the deaths occurred in public institutions. The causes of two, or 1·3 per cent., of the deaths in the city last week were uncertified either by a registered medical practitioner or by a coroner; in London the causes of all but one of the 1125 deaths last week were duly certified, as were all but one of the 81 deaths in Edinburgh.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel R. I. D. Hackett, Administrative Medical Officer at Bordon, and Lieutenant-Colonel C. R. Tyrrell, Staff Officer to the Principal Medical Officer, Eastern Command, exchange places on the foreign service roster.

ROYAL ARMY MEDICAL CORPS SCHOOL OF INSTRUCTION.

Major Charles C. Fleming, D.S.O., R.A.M.C., to be Instructor, vice Major J. D. Ferguson, D.S.O. (dated June 13th, 1909).

ROYAL NAVAL VOLUNTEER RESERVE.

The undermentioned has been appointed Surgeon: Albert James Gilbertson (dated June 24th, 1909).

TERRITORIAL FORCE.

Infantry Battalions.

5th Battalion Loyal North Lancashire Regiment: Surgeon-Captain Henry J. Taylor, from the 2nd Volunteer Battalion, The Loyal North Lancashire Regiment, to be Surgeon-Captain, with precedence as in the Volunteer Force (dated April 1st, 1908).

Royal Army Medical Corps.

2nd London (City of London) Field Ambulance: Reginald Ernest Bickerton to be Lieutenant (dated April 13th, 1909).

3rd London (City of London) Field Ambulance: Captain Hubert C. Phillips resigns his commission (dated May 8th, 1909). Bernard Elwell Potter to be Lieutenant (dated May 12th, 1909).

6th London Field Ambulance: Edward Pigott Minett to be Lieutenant (dated May 18th, 1909).

2nd North Midland Field Ambulance: Albert John Riddett to be Lieutenant (dated April 29th, 1909).

3rd North Midland Field Ambulance: George James Smith Atkinson to be Lieutenant (dated March 8th, 1909).

2nd South Midland Field Ambulance: Samuel George Webb to be Lieutenant (dated May 19th, 1909).

2nd Northumbrian Field Ambulance: George Reginald Ellis to be Lieutenant (dated May 1st, 1909). The undermentioned officers to be Captains (dated May 8th, 1909): Lieutenant Henry C. Pearson and Lieutenant Duncan A. Cameron.

3rd West Riding Field Ambulance: Lieutenant James Mackinnon, from the 1st West Riding Field Ambulance, to be Lieutenant (dated April 26th, 1909).

1st Northern General Hospital: To be Major whose services will be available on mobilisation: Robert Alfred Bolam (late Lieutenant, 9th Battalion, The Durham Light Infantry), with seniority next below Major W. G. Richardson (dated March 30th, 1909).

Sanitary Service: To be Captain whose services will be available on mobilisation: William Butler (dated June 5th, 1909).

1st South Midland Mounted Brigade Field Ambulance: Donald Buchanan to be Lieutenant (dated May 8th, 1909).

1st Home Counties Field Ambulance: George Potts to be Lieutenant (dated Feb. 11th, 1909).

1st South Midland Field Ambulance: Major Arthur R. Badger resigns his commission (dated June 4th, 1909).

5th Southern General Hospital: The undermentioned to be officers whose services will be available on mobilisation (dated July 21st, 1908):—To be Lieutenant-Colonels: Claude Clarke Claremont, Charles Plumley Childe, Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel George Gordon Sparrow (late 2nd Hampshire Royal Garrison Artillery (Volunteers)), Retired List, Harry Wynter Shettle. To be Majors: John Robert Stevenson Robertson (late Surgeon, Army Medical Department), Arthur Vernon Ford, John Phillips, John Rushworth Keele, Norman Elliott Aldridge, Charles Frederic Routh, William Prior Purvis, and Howard Percy Ward. To be Captains: Thomas Arthur Munro Forde, Samuel Goss, George Hebb Cowen, William Patrick McEldowney, Charles Archibald Scott Ridout, John Temple Leon, Harold Burrows, John Henry Pearson Fraser, John Lister Wright, Edward James Davis Taylor, Thomas Holmes, John William Gregory Kealy, Samuel Hughes, Charles Howard Saunders, William Patrick O'Meara, Rolland Atkinson Dove, Alfred William Power, John Tiley Montgomery McDougall (late Surgeon, Royal Navy), Charles Lamplough, and Montague Harold Way.

For Attachment to Units other than Medical Units.—Surgeon-Major William B. Mackay, from the 7th Battalion, The Northumberland Fusiliers, to be Major, with seniority as from August 1st, 1903 (dated April 1st, 1908). Surgeon-Captain Philip John Le Riche, from the 2nd Volunteer Battalion, The Royal Sussex Regiment, to be Captain, with precedence as in the Volunteer Force (dated April 1st, 1908).

Attached to Units other than Medical Units.—Lieutenant James A. Gibson resigns his commission (dated April 12th, 1909). Captain Richard J. Swan resigns his commission (dated May 3rd, 1909). Lieutenant John E. Simpson to be Captain (dated May 11th, 1909).

THE BIRTHDAY HONOURS.

The list of Birthday Honours includes the names of Lieutenant-Colonel W. B. Leishman, R.A.M.C., who has received a knighthood; Surgeon-General Lionel Dixon Spencer, I.M.S., honorary surgeon to the King, who is made a Knight Commander of the Bath; Surgeon-General Hayward Reader Whitehead, R.A.M.C., P.M.O., Southern Command, and Colonel de Burgh Birch, A.M.O., West Riding Division, Territorial Force, who receive Companionships of the Bath; and of Lieutenant-Colonel Robert Neil Campbell, I.M.S., Officiating Inspector-General of Civil Hospitals in Eastern Bengal and Assam, who receives a Companionship of the Order of the Indian Empire. The *London Gazette* of June 25th contains the announcement of the appointment of Colonel Charles Edward Harrison, honorary surgeon to His Majesty, Brigade-Surgeon-Lieutenant-Colonel, Grenadier Guards, as a Commander of the Royal Victorian Order.

Correspondence.

"Audi alteram partem."

MALARIA PREVENTION AT MIAN MIR.

To the Editor of THE LANCET.

SIR,—I see by your issue of June 26th that Major S. P. James, I.M.S., and Captain S. R. Christophers, I.M.S., have not "undertaken the trivial task of replying in detail to each of the criticisms brought forward by Professor Ross," but endeavour to escape from Mian Mir in a cloud of generalities about malaria in India. Permit me to pin them to the point, which is this: whether Major James's recent statements at the Bombay Medical Congress regarding the failure of the operations at that station are true or not true. On a previous occasion these gentlemen neglected the same "trivial task of replying" to the criticisms of Colonel G. M. Giles, Captain E. P. Sewell, and myself on the same subject, and now I see that they repeat all their own inaccuracies about Mian Mir without condescending even to notice the complete refutations published by Surgeon-General H. Hamilton and Colonels W. Barrow, R. H. Forman, H. D. Rowan, and J. Shearer. Until, therefore, they do undertake this trivial task I feel justified in saying that the whole of their original work at Mian Mir was badly conceived and badly executed, and that it showed little evidence either of knowledge of practical malaria prevention, or even of a genuine intention to obtain success.

With regard to Major James's paper at the congress, the

criticisms of the five administrative medical officers mentioned above can, I think, be put in the form of the following series of questions: 1. Is it not true that, owing to exceptional rains, Mian Mir was flooded for weeks last August, and that an epidemic of malaria was raging in the surrounding country? 2. Why exactly did Major James visit the station, after long absence, a few weeks after the floods, at the precise moment when the mosquitoes and the malaria were sure to be exceptionally prevalent in spite of the admittedly partial measures which had been taken against them? 3. Why, in his paper, did he omit to make any reference either to the floods or to the epidemic? 4. Why did he call the station an "arid desert" when it contains many wells and even irrigated gardens? 5. Why did he say that it had been reduced to the "verge of bankruptcy" by the anti-malarial measures, when these had really formed only a small part of the local expenditure? 6. Why in his statistics did he take only a group of years which show, apparently, the worst results? 7. Why did he vitiate them still further by including the statistics of Fort Lahore, which was the unhealthiest spot in the neighbourhood and was not included in the anti-malarial operations? 8. Why did he not state how many of the children found infected by him had only recently come to the station? 9. How does he explain finding infection in the enormous proportion of seven out of ten men of the Gloucester Regiment, taken "more or less at random," when, as Colonel Forman has ascertained, the regiment did not really suffer much? 10. How does he explain the discrepancy between his statements and those of Colonel Rowan, the principal medical officer?[1] 11. Why did he say that the success of mosquito-destruction operations elsewhere (Ismailia) had been "reported on evidence that will not bear criticism and is often ridiculous," without explaining his reasons and without inspecting the place (which is *en route* to India)? 12. Why has he not replied before to these criticisms?

The bulk of the letter by Major James and Captain Christophers consists merely of an abstract discussion, possessing neither depth nor novelty, of the old, old theme of quinine *versus* mosquito reduction. After all, the world judges by results. While, on the one hand, brilliant practical successes have been won by those who have loyally followed the new ideas; on the other hand, Major James and Captain Christophers have nothing to show but a series of philosophical reflexions—and a failure. Yet no men during the last ten years have had greater opportunities.

The position has been well put by Colonel Rowan, who writes: "Should Major James have any suggestions to offer (regarding Mian Mir) that are likely to be more effective than the anti-malaria measures already adopted, they will be most welcome, but it appears to me that he incurs a grave responsibility by attempting to discredit methods which have already, both in Mian Mir and elsewhere, been followed by a large measure of success."[2] I have not heard that Major James has made the required suggestions.

In the meantime, I keep the authors to their statements about Mian Mir. That is the centre of their position—though I perceive they are already endeavouring to make a strategic movement away from it. The Mian Mir bogey has been used long enough to terrorise malaria prevention throughout India—and elsewhere. It must now verify itself or vanish. Frankly, I do not think that Major James can substantiate his statements made at the Bombay Medical Congress. At any rate, until he attempts to do so, I propose to postpone the trifling task of discussing his more general, but, I think, equally fallacious, conclusions.

I am, Sir, yours faithfully,

University of Liverpool, June 28th, 1909. RONALD ROSS.

PS.—Those who wish to compare theory with practice should read the address by Colonel Gorgas in the Journal of the American Medical Association for June 19th, 1909.

To the Editor of THE LANCET.

SIR,—I was present at the Bombay Medical Congress in February, and heard the attack by Major James and Captain Christophers on Professor Ross's methods of malarial prophylaxis as illustrated by the "failure" in Mian Mir, together with the subsequent discussion. That I was startled goes without saying, for my experience—no small one—had convinced me that Ross was right and that the problem which confronted us was not what we had to do and how to do it, but how we could succeed in awakening apathetic authority and induce it to provide the wherewithal to combat a disease which, from both the humanitarian and economic points of view, was of enormous importance. In days gone by I knew Mian Mir and I had watched with considerable interest the progress of the anti-malarial measures in that insalubrious cantonment from their inception down to the present time. Immediately after hearing Major James's paper I made careful inquiry from competent men on the spot, amongst them Lieutenant-Colonel H. D. Rowan, R.A.M.C., who for three and a half years (including 1908) was senior medical officer at Mian Mir; and I also made a comparative analysis of the incidence of malaria in other stations (e.g., Bombay) for the year 1908, which was an exceptionally bad year for malaria all over India, so much so, indeed, that at Cawnpore and elsewhere the railway companies were well-nigh crippled for want of *personnel*. I have been travelling much since then, both by land and sea, and it is only now that I have seen the further attack on Ross in your issue of April 3rd. Hence this belated communication. Your special correspondent in that article says: "In this opinion (i.e., the failure of Ross's methods in Mian Mir) Major James *feels sure* that he will be supported by medical officers at Mian Mir who were able to observe the terrible havoc, &c." Does he? Then all I can say is, that Major James in this, as in other respects, has jumped at an unwarrantable conclusion. Far from this being so, these medical officers without exception dissent emphatically, and no one more so than Lieutenant-Colonel Rowan, an officer of wide experience and one who knows far more about Mian Mir than Major James or any other man, and who, moreover, has made a special study of malarial incidence in that cantonment.[1] In a communication before me Rowan says:—

> I have no hesitation in saying that James's statistics are unfairly adverse to Mian Mir and cannot be relied upon, and this for the following reasons: 1. They are admittedly very different from the returns rendered by the hospital. 2. They cover only a period of five years. 3. They include Fort Lahore. 4. Figures for 1908 are for 11 months only. 5. In 1908 the epidemic of malaria throughout the Punjaub was of exceptional severity.

Permit me very briefly to comment on these points. If Major James relies upon statistics at all—and he does—surely it would be more in accord with the fitness of things if he adopted the carefully compiled official figures and not some hypothetical data evolved from his own inner consciousness, and based on a few scattered personal observations extending over a few days during a flying visit to Mian Mir! The anti-malarial measures were begun in 1904–05, and "it is, therefore, ludicrously unfair to attempt to demonstrate the effect of these measures by comparing the figures of 1908 with those of 1904 and the intervening years" (Rowan). Obviously the comparison should have been made with the quinquennium, 1899–03.

Fort Lahore is one of the most pestilential spots in India; it is some four miles from Mian Mir, and in 1908, for the first time, its vital statistics were, by order, included in those of Mian Mir. The figures for the two places 1903–07, average admissions per 1000 malaria and simple continued fever, were: Mian Mir, 544; Fort Lahore, 891. Yet Major James asserts that the inclusion of the latter favours the former. He strikes an average for December, 1908, on the previous 11 months, ignoring the fact that this month is one of the healthiest in the year. Clearly this is fallacious. If malaria was epidemic everywhere surely it is unreasonable to expect that Mian Mir should wholly escape?

As I have said, the anti-malarial measures were begun actively in 1904, and I may add that they were admittedly limited and partial, nor did the Government give a rupee towards them; every penny had to be found from the funds of a semi-bankrupt cantonment. Yet here are the results, the figures being admission ratios per 1000 of strength British troops: 1878–82, 1960; 1883–87, 1524; 1888–92, 1088; 1893–97, 981; 1898–1902, 925; 1903, 1030; 1904, 587; 1905, 425; 1906, 490; 1907, 177; 1908, 537, malaria only (includes Fort Lahore).

Is further comment necessary? Hardly. I personally have not the smallest hesitation in saying that if the Government will give the cantonment of Mian Mir £1000 per annum

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[1] R.A.M.C. Journal, September, 1908.
[2] Allahabad Pioneer, March 13th, 1909.

[1] Vide his article in R.A.M.C. Journal, September, 1908.

malaria can be practically abolished from it. Major James and his coadjutors have, in my opinion, been guilty of a very grave scientific crime in thus unwarrantably attacking proven prophylactic measures. In India our whole difficulty has been to impress upon a lay bureaucracy the necessity of giving effect to the great discovery of Ross, so far with but very indifferent success. Opposition from without we are accustomed to, but when it comes from within our own ranks, the mischief accruing may not only undo the work already accomplished but may take years to remedy. Dealing as we are with by far the most important factor in the development of tropical and subtropical countries, it seems to me that with existing evidence and experience available, Major James and Captain Christophers should have been very sure of their facts before venturing to enunciate their conclusions. Their whole attack is unwarranted and unwarrantable; their "facts" are fallacies; their data false. They have, in my opinion, done incalculable harm; for it is an easy matter to make an assertion but a difficult thing to refute it. Already the effect is apparent in the lay press and elsewhere, and it is certain that with the prevalent procrastination of the East, the awakening which we had fondly hoped was at hand, will now be indefinitely postponed. I for one should not care to bear the responsibility they have so lightly assumed.

I am, Sir, yours faithfully,

R. H. FORMAN,
Colonel, R.A.M.C.; P.M.O. Bombay Brigade.

At Sea, June 8th, 1909.

PURULENT CONJUNCTIVITIS IN INFANCY.

To the Editor of THE LANCET.

SIR,—Those who continue to call the conjunctival inflammation of infancy by the antiquated, inaccurate, meaningless term "ophthalmia neonatorum" may be reminded of a wise saying of Lord Bacon's—namely, "*It is the nature of man, to the extreme prejudice of knowledge, to delight in the spacious liberties of generalities.*" In no department of medicine does a more illogical conservatism prevail, so far as terminology is concerned, than in that of ophthalmic surgery. "Yes, ophthalmia neonatorum is wrong," is the argument, "but then, you know, it has been sanctified by use." Again, much is made of the statement that the term is useful as a generic one, implying by this that an infantile conjunctivitis which can be caused by more than one micro-organism had better be described as, not what it is, a conjunctivitis, but as an ophthalmia, which it is not. Thus, to the extreme prejudice of knowledge, a spacious generality is indulged in, to which, as I have frequently observed, much of the confusion in, and the deplorable results of, the treatment of the disease may be directly ascribed. But there is another illogical conservatism in addition to that above mentioned which is undeniably more serious in this connexion. I allude to the far prevailing belief that only strong solutions of silver nitrate are of any use in the prevention and treatment of purulent conjunctivitis due to gonococcal infection in the adult and in infancy. A recent committee upon this subject in its final report has laid stress upon the use of a 1 per cent. solution of the drug. On paper this may appear to be a solution of very moderate strength. But in actual fact it consists of five grains of the silver nitrate in solution, whereas, for 25 years at least I have found that the strongest solution which is necessary is one which contains no more than one grain of the drug to the ounce of water. A great point has been made of the fact that the mothers of Liverpool, possessing babies at the breast, suffering from gonococcal infection of the conjunctiva, can be admitted, with their infected offspring, into a hospital where the conjunctival inflammation can be at once dealt with by skilled treatment. If this step is necessary for the mothers of Liverpool I can only say it is perfectly unnecessary for the mothers of the district of West London, who come with their babies to the West London Hospital. The mothers of the West London district, or those representing them, cure the babies themselves by the instructions given them, which include the treatment which I have prescribed for 25 years, and a solution of silver nitrate of the strength of one grain to the ounce of water. There is no fuss, no difficulty; the cases are brought twice a week for my inspection, and if the corneæ are intact at the time of the first visit, nothing else happens than perfect recovery from the conjunctival inflammation, no matter of what virulence the infection might be. I have so repeatedly published and taught the lines of treatment by which these results can be attained that it is unnecessary here to allude to them particularly. Meanwhile I am glad to see that my suggestion, published in a letter to THE LANCET at the beginning of the year, that the International Ophthalmological Congress should appoint a sub-committee to consider the standardisation of the treatment of purulent conjunctivitis in infancy, has been adopted. I am, Sir, yours faithfully,

Wimpole-street, W., June 24th, 1909. PERCY DUNN.

THE USE OF ANTI-DIPHTHERITIC SERUM IN NON-DIPHTHERITIC INFECTIONS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of May 15th you were good enough to comment editorially (p. 1407) upon a communication (p. 1385) in which I suggested the use of anti-diphtheritic serum in the laryngitis of measles as a matter of routine and without waiting for a bacteriological diagnosis. My point was that the laryngitis occasionally supervening in measles may be diphtheritic in nature, and that therefore such an eventuality should be forestalled by the immediate use of serum. I adhere to that thesis, and as the matter is of some importance in daily practice, may I answer the argument in your editorial note? You maintain that laryngitis is a symptom rather than a complication of measles and only endorsed my plea when that laryngitis was membranous in character. I will only quote one authority to decide between us—namely, Dr. E. W. Goodall in his article on "Measles" in the last edition of Hutchison and Collier's "Index of Treatment" (p. 525). He "strongly recommends that in all cases of laryngitis in measles occurring in localities where diphtheria is at all prevalent [and where, may I ask, is it not?], a subcutaneous injection of 4000 units of antitoxin be given." The really important question upon which my critic did not touch seems to me to be whether antitoxin is harmless should the case prove one of other than diphtheritic infection. It is years now that serum has been recommended in conditions very different from the disease for which it was first intended. Thus, it has been used in cerebro-spinal meningitis, in anæmia as a stimulant and tonic, in tetanus, in menorrhagia, and in hæmophilia. Recently in your columns[1] Mr. Frank Argles refers to its value in "cases of quinsy or bad scarlet fever throats."

Now, Sir, my only reason for recommending the serum was on the chance of the infection proving diphtheritic, and the belief that the risk of delay was greater than the risk of an unnecessary injection of antitoxin would alone, in my opinion, justify its use. I do not believe the indiscriminate use of antitoxin to be free from danger, and cannot give entire credence to those statisticians who compile hundreds of thousands of cases with no untoward consequences other than slight discomfort, slight urticaria, and slight arthritis. I have myself seen an injection of fresh antitoxin followed, in an adult, in less than 20 minutes, by intense dyspnœa, collapse, and complete unconsciousness, with, as the pulse returned, the expectoration of an enormous quantity of blood-stained froth, and later, by severe arthritis and urticaria. The initial syncopal state lasted not less than two hours, throughout which period death appeared imminent.

In the *Therapeutic Gazette* of March 15th, 1909, Gillette of New York collects 16 cases of death and 10 cases of grave collapse following injections of antitoxin, in most of which some respiratory abnormality—asthma, bronchitis, hay fever—had pre-existed. Fatal cases of injections of horse-serum have also been recorded. Of Gillette's fatal cases only two lived longer than ten minutes after the injection. In only one could anaphylaxy be alleged, an injection having been given ten years before. It is impossible to exaggerate the importance of these facts, and I venture, Sir, to conclude that their interpretation should lead us to extreme care in the use of antitoxin and to limit its employment to cases in which the diphtheritic poison is evident or suspected.

I am, Sir, yours faithfully,

A. A. WARDEN,
Visiting Physician, Hertford British Hospital, Paris.

June 26th, 1909.

[1] THE LANCET, June 5th, p. 1636.

MEDICAL INSPECTION OF SCHOOLS IN SCOTLAND: THE POSITION OF FEMALE ASSISTANT INSPECTORS.

To the Editor of THE LANCET.

SIR,—As several Scottish councils are at present seeking assistant medical inspectors and offering lower terms for women than for men, I ask your permission to draw special attention to the fact. Edinburgh City, Fife, and Forfarshire, which have all accepted the recognised minimum of £250 per annum for male assistants, offer £200 and £150 respectively for the corresponding female appointments. Several reasons, the ingenuousness of which is doubtful, have been publicly given, such as that the work of the female inspector is to be less important, or that if the female medical inspectors are remunerated at the same scale as males the female teachers will demand like treatment. The fact is that the councillors believe the supply of women to be cheaper than that of men. From the point of view of the profession the services performed by the men and women are equally incumbent on the councils, and as the prospect of advancement before the assistant is even less for women than for men it is desirable that every woman should loyally support the contention that for women as for men a whole time appointment in a service which is almost a drawback for any other department of medical work requires a minimum salary of £250, and that the councils should be made to realise this by receiving no applications for the female assistant inspectorship until the terms are adequate.—I am, Sir, yours faithfully,

Dundee, June 30th, 1909. R. COCHRANE BUIST, M.D. Edin.

A SYSTEM OF DIET AND DIETETICS.

To the Editor of THE LANCET.

SIR,—In your interesting review of the above work in THE LANCET of to-day I am somewhat surprised to find that you had no adverse criticism to offer regarding Dr. Edmund Cautley's account of the Salisbury diet, which, despite the editor's assurance that the book is written "by men who have had special experience of the subjects on which they write," can only be described as incomplete and erroneous. The vital error in Dr. Cautley's article has reference to quantity. Dr. Cautley says that the diet consists of two to four pounds of meat daily and three to five pints of hot water. Does Dr. Cautley mean that certain types of cases are allowed two pounds a day, others four pounds, while others again have intermediate quantities? Or does he mean that all types of cases are placed indiscriminately upon a minimum of two pounds and that this amount is gradually increased to four pounds? Whichever way it may be, a minimum of two pounds a day, divided between three meals (Dr. Cautley does not mention the number of meals), *means nearly 11 ounces at each meal.* As an initial quantity this will in the majority of cases greatly overtax the digestive capacity of the patient and cause disaster. The largest quantity prescribed by Salisbury at the commencement of treatment was eight ounces a meal, and often it was much less. Thus, in chronic rheumatism he commenced with a minimum of two ounces a meal and stopped at a maximum of eight ounces. I am aware that in certain cases—obesity, for example—he gradually increased the diet to a relatively large amount, but only after assuring himself by analyses of the urine and fæces that the patient could take it with advantage. Personally, in cases in which I have prescribed the diet I have found that three to four ounces is usually the most suitable quantity to begin with, and that it is seldom necessary or advisable to increase it beyond eight to ten ounces. I think I am right in saying that this represents the experience of the majority of physicians who have had occasion to prescribe the treatment. Some cases do much better on beef-mince (which Dr. Cautley does not mention) than on beef patties, his recipe for which, by the way, is not the one described in Salisbury's latest work.

I hold no brief for the Salisbury diet, which, in common with all restricted systems of diet, is liable to abuse and should only be prescribed with caution. On the other hand, when limited to carefully selected cases, and suitably modified both with regard to the disease and the individual, it will frequently prove a valuable therapeutic weapon where less drastic measures have failed. Therefore it is to be regretted, inasmuch as Dr. Cautley has written what will undoubtedly be regarded as an authoritative article on the subject, that he has not given a more correct and detailed account of its *rationale.*

I am, Sir, yours faithfully,

Wimpole-street, W., June 26th, 1909. ERNEST YOUNG.

THE DETERMINATION OF SEX.

To the Editor of THE LANCET.

SIR,—In the review published on May 22nd of my book on the "Causation of Sex" you advocate the "accumulation of data of proved scientific accuracy." Towards this collection of data I send you this fact. The birth of a princess to the Queen of Spain on Tuesday, June 22nd, not only entirely confirms my theory, but was correctly foretold by means of the data given on pp. 182, 183 of my book. As the Queen of Spain was delivered on May 10th, 1907, of a boy and expected to be delivered again in June, 1908, it was clear by my theory that her second child would be of the same sex as the first, and so on June 23rd, 1908, the boy Prince Jaime was born; becoming again pregnant and again expecting in June, 1909, it was evident the child would be of the opposite sex to the last, and so a princess was duly born on June 22nd, 1909. So that, as was the case with the Empress of Russia's children, my theory is fully confirmed.

I am, Sir, yours faithfully,

Broadstairs, June 26th, 1909. E. RUMLEY DAWSON.

THE DIAGNOSIS IN PARALYSIS OF THE EXTRINSIC MUSCLES OF THE EYE.

To the Editor of THE LANCET.

SIR,—In THE LANCET of June 19th I read with much appreciation Mr. Angus Macnab's interesting and clever paper on "A Simple Method of Diagnosis in Paralysis of the Extrinsic Muscles of the Eye." I quite agree with him when he says ordinary methods require "a very efficient memory or a severe mental effort." A few years ago I read an article by Mr. Priestley Smith of Birmingham, in which he laid down the following rules for the diagnosis of paralysis of ocular muscles:—1. Ascertain in which direction the images lie farthest apart: the inefficient muscle is one of those which normally turns the eyes in that direction. 2. Ascertain which image belongs to which eye: the inefficient muscle belongs to the eye whose image lies farthest in the said direction. I have carried these rules in my memory and found them of great assistance. I thought they might interest Mr. Macnab.

I am, Sir, yours faithfully,

G. VICTOR MILLER, M.D. Edin.,
Ophthalmic Surgeon, Stockton and Middlesbrough Hospitals.

June 30th, 1909.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

The University.

THE Bill to dissolve University College, Bristol, and to transfer all the property and liabilities of that College to the University of Bristol, came before the Committee on Unopposed Bills in the House of Commons last week. After some slight discussion the Bill passed and was ordered for third reading. On Thursday, June 24th, the new buildings of the Merchant Venturers' Technical College, which have arisen on the site of those consumed by fire a year or so back, were dedicated by the Bishop of Bristol and formally opened by Lord Reay; and on Friday evening a conversazione was held within the new buildings themselves. They form a handsome and imposing block and occupy a central situation. They are, unfortunately, separated by nearly half a mile from the main block of the buildings of the University, with which the College is now incorporated. The Faculty of Engineering in the University of Bristol will be greatly strengthened by this addition both in teaching staff and in premises. One of the

difficulties which the University has to face is the distance of several of its centres of work from the main buildings; the General Hospital and the Royal Infirmary are some minutes' walk from the medical school. This is not, however, so great a drawback as it might seem, for by a judicious arrangement of the curriculum it can be overcome.

The Anatomical Society of Great Britain and Ireland.

This society held its annual meeting in Bristol for the first time on June 25th and 26th. Scientific proceedings were limited to the morning and afternoon of the first day, and were held in the anatomical theatre of the University. On Friday afternoon there was a reception at the house of Mr. P. J. Worsley in Clifton, and in the evening the society and its guests dined at the Queen's Hotel. Professor A. M. Paterson of Liverpool was in the chair, and among those present was Professor Ramström of Upsala. Several of the speakers made apt and graceful allusion to the new University; and all who knew the history of the later stages of its development were glad to find in these speeches some recognition of the untiring efforts of Dr. E. Fawcett, the professor of anatomy and dean of the Faculty of Medicine.

The Recent Epidemic of Scarlet Fever at Sidmouth.

Dr. R. J. Reece, Local Government Board inspector, has issued his report on the inquiry which he recently held in reference to an outbreak of scarlet fever at Sidmouth (Devon) and the sanitary administration of the urban district. Dr. Reece states that from October, 1908, to February, 1909, 52 cases of scarlet fever were notified in Sidmouth; none of the cases proved fatal, and the epidemic was mild and of comparatively small dimensions. Dr. Reece states that the dwellings of the poor are for the most part clean, but in certain localities cottages are crowded together, without any means of thorough ventilation, and adds that there is no systematic inspection of meat and foodstuffs. Dr. Reece says that the town council of Exeter has agreed, since 1905, to receive infectious cases from Sidmouth in its isolation hospital. Dr. Reece suggests that Sidmouth and five adjoining sanitary districts should unite in building an isolation hospital, and in appointing a medical officer who should give his whole time to public health work.

The Local Government Board and the Axminster (Devon) Rural District Council.

At a meeting of the Axminster rural district council, held on June 25th, it was stated that the Local Government Board had written saying that it would sanction the appointment of the medical officer of health (Mr. W. Langran) for another year, but acting upon the advice of Dr. R. Deane Sweeting, who had recently inspected the district, the Board recommended the district council to combine with neighbouring authorities with a view to the appointment of a joint medical officer of health, possessed of special qualifications in public health, who would devote his whole time to public work.

Health of Cornwall in 1908.

The annual report of the sanitary committee of the Cornwall county council for 1908, which has just been issued, shows that the birth-rate during the year was at the rate of 22·44 per 1000, compared with an average of 21·97 for the last five years. The death-rate was 14·75, against 15·08 in 1907. Of the 4763 deaths, 748 were of children under one year, against 678 in the previous year. 187 deaths occurred from zymotic diseases; 133 of these were due to measles, whooping-cough, and diarrhœa. 440 deaths were due to "consumption." The report shows an increased birth-rate, a decreased general death-rate, a decreased zymotic death-rate, a decreased infectious diseases rate, a decreased phthisical death-rate, and a decreased percentage of the combined diseases of consumption, bronchitis, pneumonia, and pleurisy.

The Royal Gloucester Infirmary.

The King visited the Royal Agricultural Show at Gloucester on June 23rd, and in his reply to the civic address said: "I am happy to take this opportunity to inform you that I give my permission for the title Royal to be prefixed henceforward to the name of the Gloucester General Infirmary in recognition of the admirable work done by those responsible for its management, and the continued and successful efforts of its staff in the prevention and alleviation of human suffering."

Testimonial to Mr. E. M. Grace.

The Testimonial Fund to Mr. E. M. Grace has now reached about £530.

The Remuneration of Public Vaccinators.

At a meeting of the South Molton (Devon) board of guardians held last week Mr. A. H. Brown tendered his resignation as public vaccinator for the Witheridge District, stating that it was quite impossible for him to carry out the duties for the small fees he received. The guardians decided to ask Mr. Brown to accept a fee of 5*s.* per case, this being the old fee before the recent reduction was made.

The British Dental Association.

The annual meeting of the Western branch of the British Dental Association will be held at the University of Bristol on July 16th.

June 29th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

THE summer term is practically at an end. The examinations are either completed or are in their final stages, and the departments of chemistry and physics are preparing to move to their new quarters at Bournbrook. The entries for the examinations show a very definite increase, most marked in the departments of the Faculty of Science and in the Faculty of Commerce, whilst the other faculties practically retain the good positions they previously held.

The Hospital Saturday Fund.

Saturday, June 19th, was Hospital Saturday in Birmingham, and the thirty-seventh annual collection made on that day reached the sum of £13,739 0*s.* 3*d.*, or about £1121 less than the amount collected on the corresponding day last year. The Fund will not close for several days yet, and in spite of the bad times, it is still hoped that even if the record sum of £20,632 9*s.* 10*d.* collected last year is not attained this year, the final total will still be over £20,000. On Friday, June 25th, the total amount had risen to £17,554 11*s.* 9*d.*, which is rather more than £1200 less than the total on the same day last year, and if the hope of £20,000 is to be realised the contributions still to come in will have to be larger or more numerous than has usually been the case during the later days of the collection.

The Feeble-Minded.

The truth about the feeble-minded is gradually being put in plain words before the public, and at a recent meeting of the Birmingham education committee Mrs. Pinsent, who has taken so active a part in work associated with the care and control of defectives, spoke very forcibly regarding the necessity for legislation giving legal control over those unable to take care of themselves. In moving the adoption of the report of the special schools after-care committee, Mrs. Pinsent stated that whilst the children improved very much while they remained in school it was found that when they were turned out into the world only 5 per cent. proved capable of earning 10*s.* a week, and many who as soon as they left school became wage-earners fell back into the class of unemployed. The experience of the after-care committee has led Mrs. Pinsent to the conclusion that the mentally defective are persons who require life-long control, some to a greater and some to a less extent, but such control must be provided unless the work spent on them during their earlier years is to be entirely wasted.

Treatment Associated with Medical Inspection.

Worcestershire has initiated a scheme for the purpose of dealing with the cases of children who have been shown by medical inspection to be in need of care and treatment. The draft scheme has been adopted as a basis and a committee has been appointed to draw up a plan based on the scheme and to present it at a subsequent meeting. The scheme suggests a central committee consisting of members of the education committee and sanitary sub-committee, such committee to act as a centre for organisation, to obtain funds, and to consider the best means of obtaining cöoperation between medical practitioners and institutions. In addition, local committees are suggested, the duties of which will be to follow

up the cases noted by the medical inspectors, to induce the parents to carry out the suggestions of the medical officers, and to persuade parents to enter their children as members of provident dispensaries or friendly societies. It is further suggested that the local committees should endeavour to provide the necessary help in special cases, and in cases of criminal neglect should report to the education committee. The scheme seems practicable and workable, and the plan will be awaited with interest. The position of the medical officer to the clubs must be protected if children are to be sent to some of these institutions for treatment.

The South Staffordshire Small-pox Hospital.

At a recent meeting of the South Staffordshire Small-pox Hospital board a suggestion for the utilisation of the hospital for the treatment of phthisis from an educational point of view was considered. The scheme emanated from Dr. George Reid, the medical officer of health for Staffordshire, and its central idea is that phthisical patients should be sent to the hospital for a limited time, not especially for treatment but to be taught how they should live at home. The scheme would necessitate the erection of some shelters, a medical officer, a small number of nurses, and a domestic staff. Dr. Reid believes that it would be safe to use the buildings for the purpose he desires provided certain parts are left vacant for the reception of any small-pox cases which may arise, and he thinks the cost in upkeep of 35 beds would not exceed £2767, whilst at present the upkeep is costing £1530, for which nothing is being obtained.

Town Funds and Hospital Necessities.

The financial difficulties of the Walsall and District Hospital led the committee of the hospital to apply to the general purposes committee of the town council for an annual grant towards the upkeep of the hospital. The general purposes committee reported that it was unable to accede to the request, and on the report being presented it was proposed by a member of the council that the trading committees of the corporation should be empowered to subscribe to any of the charitable institutions of the town from which their employees received benefit. The suggestion obtained support, but it was pointed out that the eventual result would be to place the hospital on the rates, and on a vote being taken the motion was defeated by a large majority.

June 29th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Consumptive Poor.

AT a meeting of the Salford guardians held on June 25th it was decided to confirm the action of the general purposes committee in approving the majority of the recommendations issued by a committee appointed by the North-Western Poor-law Conference in regard to special treatment of phthisical cases. For the treatment of out-door poor coöperation was urged between health authorities and guardians, separate sleeping accommodation for consumptives, the distribution of helpful literature by relieving officers, and the sending of special nurses periodically to consumptive poor people. For the indoor poor, isolation and special treatment, especially as to open air, were urged. It was also agreed to hold a special meeting of the general purposes committee to discuss the need for more suitable accommodation for the housing and treatment of consumptives at the Hope Hospital, and to consider the advisability of utilising some land adjoining the hospital which belongs to the guardians.

Margarine and Butter.

The question of margarine *v.* butter, or of butter-cum-margarine, is one of considerable interest for a large section of the population of Manchester, so that the proceedings of Standing Committee B of the House of Commons on June 21st may fairly be noticed in a communication from a city which will be so largely affected as Manchester in the "Sale of Margarine Bill" introduced by Mr. Kilbride. The object of the Bill is to prevent margarine from being so coloured as to resemble butter, and so to prevent its fraudulent sale as such. The opposition to the Bill on the part of certain of the Members for Manchester was curious, and their reasoning, so far as reported, not easy to follow. Mr. Byles, one of the Members for Salford, moved to delete Clause 1, the operative clause of the Bill. He said that "the fact that margarine was coloured to resemble butter did not mean that it was fraudulently sold as butter. Imitation was the sincerest form of flattery. Ladies who could not afford a silk dress sometimes wore mercerised cotton, and he did not think they should be prevented from buying such an imitation. There was the artificial flower trade. People were sometimes deceived in that way. A little while ago he bought on the kerbstone a penny bunch of violets. When he got it he found that it was made of paper. He did not suggest, however, that Parliament should interfere." Such reasoning as this would justify any amount of adulteration. If the resemblance of margarine to butter were made close enough it would at any rate make fraud easy and make it tempting. The illustration given by Mr. Byles does not apply, and is therefore irrelevant. Ladies do not buy mercerised cotton thinking it silk. Mr. Harwood said that the people guilty of fraud were not the makers of margarine but those who bought it and mixed it with butter. Mr. A. H. Scott opposed the Bill because he said "it proposed to injure 90 per cent. of honest traders for the sake of getting at a small proportion of dishonest people," and he told the story of two clever young Irishmen in Manchester, who have been heard of before, who bought margarine to sell it to retailers, and they in turn bought it to sell to the public as butter. They sold 20 pounds or 30 pounds a week to each retailer, and undertook themselves to pay any penalties that might be imposed on the retailers if they were found out. It was easy to convict the retailers, but so far it has been impossible to catch the two clever Irishmen. Sir F. Cawley opposed the Bill as he said his constituents would have to pay more for their butter if it were passed. Some of our legislators do not take a very stern view of adulteration, but it is satisfactory that the penal clause was passed by 23 votes to 13. If margarine is sold on its merits all well and good, but if it is sold as butter the fraud should be punished.

Town Planning Bill.

A petition in favour of the Town Planning Bill has been forwarded to the House of Commons by the Manchester and Salford Sanitary Association and will be presented by Mr. Joynson-Hicks, M.P.

Should Hospital Patients Smoke?

One of the medical officers of the Hope Hospital has recommended to the committee of the Salford guardians that if the luxury of smoking be allowed it should take place only out of doors. This rather hard measure has not been meted out to the inmates, chiefly through the sympathetic pleading of one of the lady guardians. She pointed out that it would be a great hardship on the paralytics and bed-ridden, and it was finally determined that regulations should be drawn up permitting bed-ridden patients to smoke at certain hours and giving reasonable latitude to those desirous of smoking in the day rooms.

Langho Reformatory.

Regrets have often been expressed that the results of detention at the Langho Reformatory for Inebriates have in so many cases been apparently *nil*, but an effort is being made to do something more than keep these poor women there for a time, and then dismiss them without any attempt to help them to resist their special temptation. The Chief Constable of Manchester, Mr. A. Peacock, has written to the board of management suggesting that it might be possible to get together a number of ladies to take an interest in women patients after their period of detention had expired. Through them the women might be kept straight and honest work might be found for them. It is said that the board favours the idea, and it is earnestly to be hoped that it will be carried out. A tactful, strong, but sympathetic influence is just what is required in many of these cases to prevent the victim of drink from falling back into the old ways.

June 29th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Death of Professor D. J. Cunningham.

AS was recently noted in THE LANCET, the state of health of Professor Cunningham, who occupied the chair of anatomy in the University of Edinburgh, was giving

his friends the gravest anxiety. He had sojourned in Egypt during the winter without material benefit, and when he returned to Edinburgh it soon became known that only one issue of his illness was to be looked for. He died on June 23rd, and was buried on the 26th in the Dean cemetery. The funeral service was conducted in St. Cuthbert's Church. The principal part of the service was taken by the Rev. Professor Taylor, the prayers being highly impressive and appropriate to the occasion. The members of the University, including the Court and the Senatus, were present in large number. The Presidents of the Royal Colleges of Physicians and of Surgeons were present in academic costume and attended by their mace-bearers. The students were present in large numbers and many public bodies were represented. In the whole Edinburgh School of Medicine Professor Cunningham's death is not only deeply mourned on account of his personal attractiveness, but it is felt that the medical faculty of the University has sustained an almost irreparable loss.

Death of Two Edinburgh Medical Men.

At Boscombe, Bournemouth, on June 25th, there passed away in the person of Peter Alexander Young, M.D. Edin., F.R.C.P. Edin., one who was well known in Edinburgh medical circles for many years. Dr. Young graduated in medicine at Edinburgh in 1867. He practised in Portobello for many years, but over 20 years ago removed to Edinburgh, where he had a large general and family practice. For many years he was honorary treasurer to the Royal College of Physicians, and in that capacity had frequently to represent the College on public occasions, a duty which he always performed with dignity and acceptance and to the satisfaction of the Fellows. He was a keen Volunteer and took an active part in ambulance work. He was a justice of the peace for the County of the City of Edinburgh. He took an active part in various philanthropic movements. His genial and friendly bearing made him a favourite with his brethren, and his patients were much attached to him. Failing health compelled him to resign his connexion with his College, and soon thereafter led him to abandon practice and to seek the milder climate of Boscombe, where his death took place.—On June 24th, at Newton, Nairn, William Alexander Finlay, M.D. Edin., F.R.C.S. Edin., recently of Trinity, near Edinburgh, passed away. Dr. Finlay came of a medical family and succeeded his father in general practice in Trinity. Until his health began to fail he was the leading practitioner in the district and was well known to his brethren in Edinburgh as an excellent practitioner. Some years ago he was one of the surgeons to Leith Hospital. He died at the house of his brother, Sir Robert Finlay, himself at one time a student of medicine and Attorney-General in the last Unionist Government.

The Responsibility for the Treatment of Consumptives in Glasgow.

The parish council of Glasgow has felt for some time that too much of the responsibility for the treatment of consumptives rests on its shoulders. It does not fall within the powers of the council to undertake the treatment of the consumptive at the period of his illness most likely to result in recovery—i.e., when he is still able to work; but at a later period, when the disease is so advanced as to render him unfit for work and correspondingly more unlikely to recover, he is sent to one of the parish hospitals for treatment, and his wife and family are thrown upon the rates for support. As the council has not the power to interfere at the earlier stage of the disease, while the man is still a possible wage earner, it has for some time been urging upon the corporation that it is its duty to undertake the responsibility of these cases in the earlier stages. It is impossible to deny that such a course is economically as well as medically sound, and in order to consider the whole matter the corporation's subcommittee on the prevention of tuberculosis has had a meeting with representatives of the parish councils of Glasgow and Govan, the National Association for the Prevention of Consumption, Quarrier's Homes, and the Lanfine and Bellefield sanatoriums. As a result of this meeting a memorandum has been prepared by Dr. A. K. Chalmers, medical officer of health of Glasgow, suggesting the following points for consideration: (1) That phthisis be included among the notifiable diseases for a period of three or five years; (2) that in addition to the tuberculosis dispensary, at present conducted in the sanitary chambers, similar facilities be provided in the eastern, western, and southern districts of the city; (3) that a nurse be appointed to each dispensary for systematic visitation of the houses and families of those in attendance thereat; (4) that the work of home visitation be placed under the charge of a medical assistant appointed for the purpose; (5) that until additional hospital accommodation is available for infectious diseases the parish councils of Glasgow and Govan be invited to consider the conditions under which cases of the class formerly admitted to Baird-street Reception House may be accepted by them; and (6) that the local branch of the National Association for the Prevention of Consumption and the friendly societies be invited to a conference to consider the question of making further provisions for assisting the consumptive worker to obtain the benefits of sanatorium treatment.

Abuse of Medical Charities.

At a recent meeting of the Glasgow and West of Scotland branch of the British Medical Association the branch council reported on its inquiry into the alleged abuse of medical charities. It stated that circulars were issued to members of the medical profession in Glasgow and the neighbourhood asking for specific instances of the abuse of medical charities. The Council received only 49 replies to 600 circulars. In face of so limited a response it thinks that it can hardly be asserted that the medical profession in Glasgow suffers to any large extent from the abuse of medical charities. It appears, however, that there is a certain amount of abuse, and unfortunately it is frequently associated with cases recommended by medical men. The general view appeared to be that such abuse as exists is confined mainly to outdoor departments and dispensaries.

Medical Tutors for the University of Glasgow.

Under the will of Dr. John Hall, a graduate of the University of Glasgow, who died last April, the University will ultimately benefit to the extent of about £40,000. This sum has been left to the Senate of the University of Glasgow as an endowment for the foundation of tutorial fellowships in connexion with the study of medicine, surgery, and midwifery at that University, to be called the "Hall Tutorial Fellowships," as has been already announced in the columns of THE LANCET. The Fellows are to be medical graduates of the University of Glasgow of not more than five years' standing. The election is to be made by a body consisting of the professors of surgery, medicine, and midwifery. The fellowships are to be awarded after examination (either special or part of the graduation examination) and each of the fellowships is to be of the value of £200 per annum, payable in advance at the beginning of each session. The fellowships, of which there are to be as many as the income will permit, are to be held for three years, and may not be held with any other scholarship, bursary, or other educational emolument. Also the Fellows are to live within three statute miles of the University and are to devote their whole time to practical instruction of students under the direction of the professors, and may not engage in any private practice or tuition.

The Remuneration of Medical Officers of Schools.

A meeting was held in the Medical Club, 22, Carlton-place, Glasgow, on June 29th, of representatives from all the medical societies of Glasgow to consider the question of medical inspection of school children, and more especially the remuneration that it was proposed to give to the medical officers about to be appointed. A number of gentlemen spoke, and while several were of the opinion that no part-time appointments should be made, on the motion of Dr. W. A. Caskie it was unanimously resolved that the remuneration to the quarter-time medical officers, whom the School Board propose to appoint, be made on the basis of a sum of half a guinea per hour. It was further unanimously agreed that a small committee be appointed to draw up a memorial embodying the views of the meeting as expressed by Dr. Caskie, and that this same committee be empowered to go as a deputation to the School Board should they consider it advisable.

Surgical Operation in the Street.

At Dumbarton recently a most unfortunate accident occurred to a boy through standing on the step of a friend's

bicycle. The boy was barefooted, and his right foot became entangled with the chain and gear-wheel and was severely crushed. Although medical assistance was at hand the foot could not be released without amputating the great toe, and this operation was carried out on the pavement, after which the boy was removed to the cottage hospital.

Treatment of the Insane in the Rathven Colony.

Attention is called in the report of the General Board of Commissioners for Lunacy for Scotland to the success which has attended the efforts of the parish of Rathven to provide for its patients under private care. 50 per cent. of the insane chargeable to it are thus provided for. In the present year the total chargeable insane of the parish is 56, an increase in 14 years of no less than 126 per cent., of whom 28, or 50 per cent., were met with in private dwellings. The colony, numbering 44 patients (26 males and 18 females), is scattered over a district six miles by five situated in the parish of Rathven. The patients are lodged with crofters and small farmers. Of the ailments 27 were imbecile, 9 demented, 4 maniacal or melancholic, delusional insanity accounted for 1, while there were three ill-defined types. The ages were from 15 to 80. Six were paid for at the rate of 3*s.* per week and under, five at a rate exceeding 3*s.* and under 5*s.*, 24 exceeded 5*s.* and under 6*s.*, and ten from 6*s.* to 7*s.* As regards the productive capacity of the patients, 7 per cent. are classed as very good, 24 per cent. as good, 21 per cent. as moderate, and 48 per cent. as useless. The movement to develop and to extend the family care of the insane, at first looked at somewhat askance, has been approved, encouraged, and developed to the extent indicated chiefly owing to the enlightened management of the colony.

Forfarshire School Boards and the Medical Inspection of School Children.

A conference of the Forfarshire school boards with the Forfarshire secondary education committee was held on June 23rd to consider the question of the medical inspection of school children. It was agreed to appoint Dr. N. J. Sinclair, medical officer of health of the county, chief medical officer at a salary of £200. He will be expected to devote about half his time to the work of supervising the medical inspection of the children. It was also decided to give Dr. Sinclair a male and a female assistant, whose whole time will be given to the examination and supervision of the children. It was agreed that the first male assistant should be appointed at a salary not exceeding £250 and that the second assistant female should be appointed at a salary not exceeding £150. It was also agreed that the sum of £150 per annum should be assigned for travelling expenses for the school medical officer and his assistants, and that the sum of £120 should be assigned for the payment of the salary of a clerk-typist and for the expenses of stationery and printing. It was also decided to provide each school in the county with a weighing machine and a measuring rod.

Outbreak of Typhus Fever in Dundee.

An outbreak of typhus fever has been reported by Dr. C. Templeman, medical officer, Dundee. There have been nine cases, and the infection is believed to have been traced to the selling of the effects of a person who had died from it. Comment was made in the meeting of the public health committee as to the sales of old clothes, &c., on ground let by the town council for the purpose, and on the dangers of infection therefrom, and the question was raised as to whether the sanitary authorities had not power to put a stop to it. The outbreak has so far been confined to two families.

Death of Dr. William Hunter of Hong-Kong.

The death of Dr. William Hunter, Government bacteriologist, Hong-Kong, has been announced by a cablegram dated June 10th. It must be feared, since his professional duties called upon him to visit natives suffering from plague and other infectious diseases, that his death was due to infection in some form. Dr. Hunter was the son of the late Rev. William Hunter, Macduff parish church, and had a successful career at the University of Aberdeen. In 1896 he won the John Murray medal and scholarship, and in 1897 the George Thompson Fellowship, graduating the same year with honourable distinction. He is survived by his wife and one child. While he and his family were home on holiday last year in London, the other of his children met death by falling down a lift.

June 29th

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Dublin Municipal Improvements: Extension of Main Drainage System.

AN inquiry of great importance to the Dublin ratepayers was carried out last week in the city hall before the chief engineering inspector of the Local Government Board. It dealt with the application of the corporation for sanction of the following loans: £100,705 for extending the electric lighting mains and plant; £100,000 for completing the main drainage; £17,400 for erecting lodging-houses for the working classes at Inchicore; £10,632 for completion of refuse destructor; £10,000 as advances under the Small Dwellings Act; £10,000 for carrying out street improvement works; £1320 for the lighting of Drumcondra and the North Circular-road by electricity; £1006 for private improvement expenses; and £2365 for carrying out street improvement works at the Ranch, Drumcondra. Regarding the provision for completion of the main drainage, evidence was given of the particulars of the population of each of the new districts which it was proposed to connect with the main drainage scheme; also of the quantities of sewage which would be carried in the new mains. It was estimated that the total accession of sewage would be to the amount of 3,697,200 gallons. The population already connected was 215,065, and the number which it was now proposed to connect was 88,424. When the drainage was completed the total flow would be 15,187,200 gallons per day. The inspector asked whether the additional connexion would have the effect of making the Liffey brighter and purer than it is at present. The reply was an unhesitating affirmative, which will be confirmed by all who remember the June odours of the Liffey a few years ago, and the improvement which has already arisen from the drainage works.

Death of a Crimean Sister of Charity.

By the death of Sister Theresa, Reverend Mother of the Sisters of Charity in charge of the nursing of the Cork North Infirmary, a notable personality has passed away. During the Crimean war, when she was quite a young nun, she volunteered to go to the front to nurse the sick, the wounded, and the dying. She partook of the great privations of the troops, and her bullet-pierced garments, affectionately preserved by the members of her order, are a proof that in the cause of mercy and charity she did not hesitate to advance into the fighting-line. About 12 years after her return from the Crimea she was appointed Sister Superintendent at the Cork North Infirmary and brought to the discharge of her duties a clear intelligence combined with a most kindly disposition. Many past students of the hospital will hear of her death with regret.

Fever Cases in Londonderry.

At a meeting of the Londonderry board of guardians held recently a report was adopted, by 16 to 15 votes, with reference to the proposed amalgamation of the City Fever Hospital at Foyle Hill and the Union Fever Hospital. The guardians offer to pay £75 per patient annually out of the Union funds on condition that the corporation take over their entire liability in respect of hospital accommodation for fever and other infectious diseases, and that the corporation provide for and maintain all poor persons suffering from such diseases for the treatment of which the guardians are at present responsible; and, further, that any fever patients residing in the rural districts who are able to pay for treatment and wish to go into the Foyle Hill Hospital shall be admitted and charged no more than the scale of charges which applied to the city patients. The corporation is asked also to provide for all improvements and enlargements to be made at Foyle Hill Hospital at a cost of not less than £1500, subject to the approval of the Local Government Board. A committee was appointed to confer with the representatives of the corporation on the matter.

The Prevention of Tuberculosis (Ireland) Act.

At the weekly meeting of the rural council of Omagh held recently, a letter was read from the Local Government Board in the form of a memorandum on the objects of the Tuberculosis (Ireland) Act, 1908, to which was appended a summary of its provisions and also a copy of an order made by the Board prescribing the forms and stages of

tuberculosis to which, and the circumstances in which, Section 1 of the Act applied. The chairman said it would be very unwise for that council to adopt Section 1 of the Act—i.e., the section dealing with notification and disinfection—as its powers were compulsory. He thought that they should do all they could to prevent tuberculosis spreading without resorting to compulsion. Better evidence than such views could not be found in proof of the foresight of those who advocate compulsory powers under the Act, as without these powers it is clear that many county and rural councils will shirk their duty, and as a result nothing will be done to check the disease. Permissive legislation in public health matters is likely to end in failure.

The Queen's University of Belfast.

Sir James Henderson, M.A. Dub., D.L., chairman of the technical and library committee of the Belfast city council, has been appointed by the Crown a member of senate of the Queen's University of Belfast in place of Dr. Peter Redfern, Regius professor of anatomy, who has resigned.

June 29th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Indirect Massage in Ophthalmic Practice.

AT a recent meeting of the Société de Kinésithérapie M. Wetterwald, speaking on the subject of indirect massage (*massage à distance*), said that in it the tissues above or on the proximal side of the region or organ to be acted on were gently manipulated for the purpose of promoting the formation of a cicatrix or removing congestion. In this way an effect was produced indirectly on the circulation and innervation of the part in question. In the case of a young girl who had suffered for three months from relapsing keratitis with photophobia, lacrymation, and closure of the eyelids, M. Wetterwald found that all these symptoms disappeared in eight sittings. The treatment consisted in kneading (*pétrissage*) the tissues of the cheek, temple, and forehead without touching the eyeball or the eyelids, and this massage of the region supplied by the superior maxillary nerve influenced the special structures of the eye. M. Mesnard, speaking on the subject of the paper, said that the disappearance of congestion caused by the act of mastication was another indirect effect of a similar kind. He had often observed this phenomenon in his own case during attacks of conjunctival congestion.

Hay Fever.

At a meeting of the Academy of Sciences held on June 21st M. Delage submitted on behalf of Dr. Pierre Bonnier a memoir on hay fever, mentioning that the pollen of the graminæ was for the most part not responsible for the production of attacks, because some patients were affected only at sea or in snowy weather, or under conditions of the most dissimilar kind, or at times of the year when no plants were in the stage of inflorescence. Hay fever was a definite bulbar trouble, a disorder of certain secretory nervous centres with hyperæsthesia of the exposed mucous surfaces and spasmodic reflex expulsive efforts; it was, in fact, a true diathesis and frequently associated with other functional abnormalities, including the arthritic diathesis. Treatment ought to aim at restoring the normal action of the bulb and reducing the sensitiveness of the mucous membrane. This could generally be done, he said, by applying the cautery to very small points in certain areas of the nasal mucous membrane—a procedure which had a sedative action. Energetic cauterisation, on the other hand, produced unsatisfactory effects, and must be carefully avoided.

The Antitryptic Power of the Blood Serum as a Means of Diagnosis.

At a meeting of the Academy of Medicine held on June 15th M. Widal communicated a paper by M. Poggenpohl of St. Petersburg, who has investigated the antitryptic power of the blood serum in M. Widal's laboratory and has made observations on 112 patients by the method of M. Marcus. M. Poggenpohl has found that the antitryptic power was as a general rule increased in cases of cancer and lobar pneumonia, whilst in other acute and chronic diseases the antitryptic index was almost always normal. The estimation of the antitryptic power of the blood serum, proposed by M. Brieger and M. Frebing for the diagnosis of cancer, was therefore of great importance in symptomatology. M. Poggenpohl did not share M. Brieger's opinion that this reaction was an indication of cachexia, because, on the one hand, he had met with it in many persons without evidence of cachexia, and, on the other hand, he had failed to discover it in many persons presenting a cachectic condition but not suffering from cancer. This property of the blood ought to be regarded as a means of defence and immunisation; antitrypsin seemed, in fact, to be a true antibody elaborated by the organism as a protection against the entrance of a proteolytic ferment which might originate in various ways.

Plague in Tunis.

At a meeting of the Société de Pathologie Exotique held on June 5th M. Conseil said that in the town of Tunis he had examined rats and their ectoparasites in reference to the propagation of plague and had arrived at results in conformity with those obtained by M. Billet in Algeria. When M. Nicolle and M. Sicre were making their investigations at the time of the plague epidemic, it was found that 8 per cent. of the rats that were caught were infected with the bacillus of plague. Although there had been no plague in the human subject since the month of February, M. Conseil had nevertheless found three infected rats. The disease was therefore endemic among those rats, a dangerous condition of things which ought to be combated by destruction of the animals.

Election to the Academy of Medicine.

M. Schwartz, surgeon to the Hôpital Cochin and *professeur agrégé* at the Faculty of Medicine, has just been elected a member of the Academy of Medicine in the section of surgical pathology.

Burglary at a Laboratory.

During the night between June 16th and 17th the laboratory of the Faculty of Medicine of Nancy was entered by burglars, who carried off instruments and apparatus of platinum and silver valued at 4000 francs.

Surgical Treatment of Renal Calculus.

At a meeting of the Surgical Society held on June 9th M. Pousson submitted statistics of 30 consecutive cases of renal calculus on which he had operated, suppuration being present in 20 of them but not in the remaining ten. In one of the ten non-suppurative cases nephrectomy was performed in consequence of an error in diagnosis and was followed by recovery which was maintained for ten years without relapse. Nephrectomy performed in the other nine cases was followed by one death, for which the operation was not responsible, as the patient succumbed to cerebral hæmorrhage 21 days afterwards. With one exception, all the other patients operated on, who could be traced, were alive and in good health. The longest time which had elapsed since the operation was five years and ten months, the shortest time being six months. The 20 cases attended with suppuration comprised three of pyelitis and 17 of pyelonephritis. The three former were treated by nephrectomy and recovered without the formation of fistula; the times elapsed since the operation were respectively five years, four months, and two months. Of the 17 cases of pyelonephritis six were treated by primary nephrectomy, with five recoveries and one death from anuria; six were treated by nephrotomy, with one death under chloroform, two deaths from shock, one death from anuria, and one death at a late stage from septicæmia, the sixth patient being still under treatment. In four cases, all of which terminated in recovery, nephrotomy had to be followed by secondary nephrectomy.

June 28th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Neuralgia of the Trigeminus Nerve.

AT a recent meeting of the Gesellschaft der Aerzte Dr. Flesch read a paper on the Treatment of Neuralgia of the Trigeminus Nerve. He has modified somewhat the method invented by Dr. Schloesser, in which alcohol was injected into the foramen ovale or the foramen rotundum in the base of the skull where the nerve emerged. This procedure required considerable anatomical knowledge and manipulative dexterity, so that it could not be carried out by the general

practitioner. In the modification suggested by Dr. Flesch the alcohol was injected into the peripheral nerve fibres, which was easily done and easily learned. He injected 1 cubic centimetre of alcohol of 80 per cent. strength, and if necessary the dose might be repeated the next day or even on four consecutive days. The result in the 19 cases so treated has been excellent so long as it lasted, but the benefit was unfortunately not permanent, for after about ten months the pains returned, indicating a regeneration of the nerve. The injection might then be repeated, and this could be done as often as relapses occurred. These peripheral injections were not so effective as the central injections into the foramen, but they were much more readily made. Of course, the extirpation of the semilunar ganglion or ganglion of Gasser was the best method, but its disadvantages, such as the complete paralysis of certain masticating muscles and the danger incurred by the eye, were rather serious. Dr. Flesch has observed that cases in which the nerve had previously been resected peripherally were not suited for his method. He has not had any result in cases of disease of the trigeminus nerve, whether of hysterical or traumatic origin. The discussion following this paper was very interesting from the practitioner's point of view. It appeared that there were several other methods which might be useful in this condition. For instance, Dr. Gussenbauer and his school have obtained recovery in such cases by violent purgation, and calomel followed by two or three pints of saline bitters was even now in use in the clinic for such nervous conditions. Ligature of the carotid artery has been tried without satisfactory result. The very drastic method of trephining over the fissure of Rolando on the opposite side, with splitting of the dura mater, has been tried by Jaboulay and Lorenz with variable results. Professor Grossmann reported 17 cases in which he succeeded in completely relieving attacks of tic douloureux by galvano-caustic destruction of the anterior end of the middle turbinal. Dr. Weil said that he had seen benefit produced by galvano-cauterisation of certain areas on the septum of the nose. He therefore believed that many attacks were due to irradiation, originating from minute lesions of the nasal mucosa, and for this reason all other remedies ought to be tried before resorting to the dangerous and not absolutely reliable operation of evulsion of the nerve or removal of the ganglion. Professor Fraenkel said that he had in several instances removed the second branch of the nerve by a novel route from the canine fossa and through the antrum of Highmore with very satisfactory results. This method was safe and not attended with very much hæmorrhage. From the opinions expressed in the discussion it was to be gathered that there was not as yet any one method applicable to all cases of trigeminal neuralgia alike, but that much could be done to relieve the sufferings of the patients.

A New Method of Inhibiting the Action of X Rays and Radium.

Following up a series of experiments on plants, Dr. Gottwald Schwarz has described in a paper read before the Gesellschaft der Aerzte observations made by him with regard to a method of increasing the penetrating power of the X rays without injuring the skin. He said that practitioners using the rays could not help feeling that a more decided effect might be produced on the disease if more rays could be sent into the deeper structures without harm to the superficial layers. He had found that vegetable seeds in their stage of inactivity were unaffected by exposure to X rays on an enormous scale; but as soon as the process of metabolism had begun a very small exposure was sufficient to produce effects of the nature of disturbance. Dr. Schwarz concluded that the degree of the metabolism of a living tissue was very important in regard to its permeability for the rays. He treated an extensive nævus by means of a radium capsule, which in one instance was placed loosely on the nævus, whilst the next time the area adjoining the nævus was covered by the capsule under pressure exerted by means of a tight bandage. In this way the skin was made anæmic and the metabolism was so to say stopped. The difference in reaction was most marked. The area exposed without pressure was after four weeks the seat of intense inflammation with consecutive desquamation and atrophy of the vessels, whereas the area exposed under pressure did not at any time show more than a slight hyperæmia. A similar observation with X rays had a similar result. A boy suffering from trichophytosis was treated by exposure to the rays. One area was covered by a thin plate of wood, another area of equal size was exposed to the same tube at the same time, but it was covered by an equal-sized plate of wood which was pressed firmly against the bone by means of attached weights. After the lapse of 17 days from the exposure the area with pressure exerted on it was just the same as before, but the control area was free from hair. Dr. Schwarz believed that pressure was only one means of lowering or stopping the process of metabolism locally. Freezing could also be used, but more observations were necessary for ascertaining the best methods of procedure.

The Contest between Medical Organisations and the State.

Various medical organisations have lately in several instances caused certain medical appointments to be boycotted, and the corporations thereby affected, which are mostly clubs, have appealed to the law courts against this method of counteracting their machinations. These appeals having elicited judicial decisions unfavourable to the medical profession, the Reichsverband Oesterreichischer Aerzte-Organisationen (Union of Austrian Medical Organisations) has now been induced to take the matter in hand, and has forwarded to the Ministry of Justice a resolution containing explanations as follows: "A boycott has been defined as an appeal to practitioners to refrain from competing for an appointment which has become vacant for one of the three following reasons: (1) dismissal of a medical practitioner from the position in question without sufficient cause being assigned; (2) resignation of a practitioner on the ground of inadequate remuneration, so that the acceptance of the appointment by another man would mean underselling; and (3) differences of opinion between the practitioner and corporation on points of principle or for motives of a social or ethical nature. These three conditions have been consented to by all representative bodies of the profession in Austria and cannot be interfered with by legislation, as a simple appeal from one group of medical men to another group cannot be prohibited." The organisation has taken care to eliminate all coercive measures from its programme as regards the boycott, so that the authorities or magistrates may have no pretext for interference, whilst the sense of common interest is already strong enough amongst the profession to make every practitioner understand the words of Virgil: "Nam tua res agitur." The result has been that in three instances already the union has succeeded in securing for its members adequate remuneration from public bodies, because it was found that other conditions than those insisted on by the union could not induce any regular practitioners to accept the vacancy in spite of the assistance given by the state to the other side.

June 28th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Plague.

THE plague returns for the week ending May 15th show 4578 deaths, compared with 4279 in the week preceding. Bombay Presidency reported 446, Bengal 263, the United Provinces 758, the Punjab 2786, Burma 39, and Rajputana 249. Plague has at last appeared in the Kangra Valley, where 17 cases with 13 deaths occurred during the week ending May 8th.

Lauder Brunton Lancets.

In an official report published by the Lieutenant-Governor of the United Provinces some interesting details are given regarding the use of the Lauder Brunton lancets and permanganate of potash for the cure of snake-bite. The results vary a good deal in character. In Meerut district the lancets were used in 235 cases and success followed in 171 of these, but it is not certain that in all these cases the bites were those of poisonous snakes; in 22 cases the patients died. In Barabanki four cases were successfully treated and in two of them the snakes were seen to be cobras. Other districts report success in several cases, but the returns are not so trustworthy, as it was not always proved that the snakes were venomous. The Commissioner of Agra reports that the villagers are afraid of the lancet and prefer

their own methods of treatment, while one magistrate says there is general complaint that the lancets are not sharp enough to make proper incisions where the skin is hard.

Malarial Fevers in Bengal.

Malaria has lingered in Bengal far beyond the cold weather, and the Government has now resolved to extend even further the State supply of cheap quinine through various local agencies. The plan adopted in the Punjab is being followed, as good results have been gained in that province.

The Central Research Institute at Kasauli.

Perhaps it is not so widely known as it should be that the Pasteur Institute at Kasauli serves as the provincial laboratory of the Punjab, and as such does a large amount of useful as well as important work. Last year 675 specimens of various kinds were examined, including 457 cases for serum diagnosis for both typhoid and Malta fevers, 69 of examination of blood for malaria parasites, 62 of examination of sputum and other discharges for tubercle bacilli, and 32 of examination of tumours. The total number was less than in previous years, owing to orders having been issued from army headquarters, medical division, that all specimens from military hospitals were to be sent to the brigade or divisional laboratory concerned, and that only those in connexion with rabies were to be forwarded to the Pasteur Institute. It is stated that the majority of the specimens sent to the laboratory in past years had come from military medical officers. The director of the institute hopes that "in course of time the civil surgeons of the Punjab will recognise that a laboratory exists for their own special use."

The Indian Medical Service.

Important despatches have passed between the Viceroy and the Secretary of State regarding the proposed restriction of the Indian Medical Service in order to promote the growth of an independent medical profession in India. The Government of India, in reply to a communication from the Secretary of State, has pointed out the various difficulties in the way of taking the step indicated, but it does not consider the difficulties insuperable and, providing the war reserve of officers of the Indian Medical Service and the attractiveness and efficiency of the service are not interfered with, it is prepared to recommend that candidates from outside should be appointed to posts at present filled by the Indian Medical Service. The Secretary of State expresses satisfaction that the Government of India favours his suggestion. He states that he has "decided that the time has now arrived when no further increase of the civil side of the service can be allowed, and when a strong effort should be made to reduce it by gradually extending the employment of civil medical practitioners recruited in India." In directing the Government of India to consider what appointments can best be filled in this way, Lord Morley lays down the following specific instruction: "When it is found impossible to obtain a man from outside the I.M.S. to fill a particular new civil appointment, or one which has not previously been so filled, I will not object for the present to that service being drawn upon, but the vacancy so caused must be filled from outside it—i.e., no appointment must be made in succession which would involve an addition to the cadre of the I.M.S." The Government of India is asking the opinions of provincial Governments on the subject, and will subsequently make recommendations to the Secretary of State as to the methods by which the proposals shall be carried out.

Indian Medical Service Study Leave.

The regulations regarding the grant of study leave to officers of the Indian Medical Service, as published in the Department of Military Supply, Notification No. 16 of 1907, are reconstructed as follows: Study leave may be taken at any time, but will not be granted more than twice in the course of an officer's service. This restriction does not, however, apply to an officer who has part of his furlough converted into study leave under Rule 8. Officers on furlough, or other leave, who wish to have part of it converted into study leave, should address the Under Secretary of State, India Office, and should attach a statement showing how they propose to spend the study leave. Similarly officers on furlough or other leave who desire to have it extended for the purpose of study should address the Under Secretary of State, but in addition to the statement of the proposed study, they must support their applications with documentary evidence of their having obtained the approval of the authorities concerned in India to their applying for an extension of leave.

May 25th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Opium Smoking.

THE police are very active in endeavouring to detect illicit traffic in opium, and raids on Chinese and on vessels arriving from the East are of daily occurrence. The drug has become so valuable that many Europeans are engaged in the smuggling operations. According to police statements opium is now very scarce in Victoria. A pipeful costs from 1*s.* to 1*s.* 6*d.*, while a 1-pound tin will fetch £4. Most of the old evil dens in the Melbourne slums are now no longer existent.

Sanatorium Treatment.

Dr. Norris, chairman of the Board of Public Health of Victoria, recently stated that at the Greenvale Sanatorium for Consumption (a Government institution near Melbourne) 868 patients had been received from May, 1905, to December, 1908. In about 60 per cent. of these cases the disease was arrested or the patient's condition much bettered, 14 per cent. were discharged as incurable, and at least 30 per cent. fully regained their health. The death-rate from consumption is stated by Dr. Norris to have fallen in this period from 11·76 to 9·58 per 10,000 over the whole State. In Melbourne the fall is from 15·5 to 11·6; in Ballarat from 16·00 to 10·49; and in Bendigo from 22·01 to 20·24. The latter centre is a consumptive resort and also a large contributor to deaths from miners' phthisis.

Milk Standard.

For a long time the Victorian dairymen have been dissatisfied with the 3·5 per cent. standard of butter fat in milk. The Board of Health recently declined to lower this standard. The agitators have now secured the sympathy of the present Minister of Agriculture, who has promised to urge the Minister for Health to reduce the standard to something below the present standard.

Municipal Sanitation.

Wrightville is a small municipality near Cobar in New South Wales. The Board of Public Health recently notified the local council that a pan system of night-soil disposal would have to be established. The councillors declined to consider the matter and resigned in a body as a protest against interference in their affairs.

Obituary.

The death of Dr. John Thomson of Brisbane removes one of the oldest and best known figures in the medical profession of Queensland. Dr. Thomson was a graduate of the University of Edinburgh and a very old resident of Brisbane. He was surgeon to the hospital and principal medical officer of the Queensland military forces, besides holding many public positions of trust. He was President of the Australasian Medical Congress which assembled in Brisbane some years ago. The late Dr. Thomson possessed a genial personality, as well as sound professional insight and skill, and was very popular wherever he went. One daughter, Dr. Jean Thomson, is also a member of the medical profession and practising in the northern capital.

Medical Bill.

The medica profession in Queensland recently approached the Premier with a request that a Medical Bill should be introduced into Parliament to remedy many existing abuses. At present the question of registration is very unsatisfactory, and a practitioner may be registered after three years' study. The Premier promised to endeavour to meet the wishes of the deputation.

Drink Legislation.

Mr. Lesina, M.L.A., of Queensland, has recently returned from visiting New Zealand and says, with respect to liquor legislation in the Dominion: "In spite of passing 13 Acts, each more drastic than the last, prohibitionists are still asking for new enactments. A curious fact is that as the

number of licences is decreased the convictions for drunkenness increased, and there has been gradual increase in the annual drink bill since 1895. Sly grog shops are encouraged by this legislation, and a system of perjury and police corruption has resulted which is very undesirable. Lunacy is increasing and there is a general disrespect for the law." Mr. Ranking, P.M., who was specially deputed to report on the matter for the Queensland Government, has reviewed the liquor legislation from an industrial standpoint. From the social aspect much might be said on both sides for the operation of the no-licence system. He draws the conclusion that it would be unwise to adopt the New Zealand system pending a more extended experience of its effects.

Ploughing Bee.

A somewhat novel method of obtaining funds for a hospital was adopted by the Casterton (Victoria) committee. The president induced the committee to lease 25 acres of land and then arranged with a number of neighbouring farmers to plough and sow it. 25 teams turned to the ploughing operations, which were completed in a single morning.

Melbourne Hospital.

After a good deal of hesitation the committee has consented to a request from the medical staff to construct the new hospital on a 400 bed basis, but the equipment of beds will only be proceeded with as future income may determine. The present building accommodates about 300. Another proposal from the staff has given rise to some newspaper controversy. The Melbourne Hospital has hitherto been without special departments for aural, throat, or eye work. There has likewise been no special gynæcological department. Instruction in these subjects has been obtained by students at the Eye and Ear and the Women's Hospitals. It is now pointed out that this arrangement is unsatisfactory, and the staff have requested that specialists in these subjects be appointed to the out-patient department. This request has been opposed by the committees of the two special hospitals named, and the treasurer is likely to be approached to insist on the Melbourne Hospital remaining as at present, on the ground that the new departments would constitute overlapping of hospital provision. At the recent Congress a committee was appointed to request the Government to appoint a charities board to prevent overlapping, and advantage is being taken of this attitude by those interested in the special hospitals. It is probable that a compromise of some kind will be effected, as it appears obviously absurd that the great teaching institution of the University should not be self-contained in all special departments.

May 19th.

Obituary.

DANIEL JOHN CUNNINGHAM, M.D. EDIN. & DUB., F.R.C.S. EDIN. & IREL., D.C.L. OXON., F.R.S.,

PROFESSOR OF ANATOMY IN THE UNIVERSITY OF EDINBURGH.

BY the death of Professor Cunningham the University of Edinburgh has lost perhaps the most distinguished member of its medical faculty. The illness which terminated fatally on June 23rd began early last winter and rendered him unable to perform his professorial duties. In the hope of regaining health he went to Egypt in December. His condition was, however, not ameliorated by the change of climate, for while there he continued to suffer much pain. He left Egypt at the end of March and from the time of his return to Edinburgh he was confined to bed. He became steadily weaker until he died. His illness was anxiously watched by the whole profession in Edinburgh, while the hopelessness of the outlook and the knowledge that the illness was associated with much suffering elicited a widespread and a deep sympathy with him and with his family.

Professor Cunningham was in his sixty-first year at the time of his death, and before the appearance of the malady which led to his death he had the aspect of a man with the expectation of many years of vigorous life. He was, what is called in Scotland, a "son of the Manse," his father at the time of the son's birth being parish minister of Crieff, while later he became Principal Cunningham of St. Andrews. Professor Cunningham graduated in medicine at Edinburgh in 1874 with first-class honours, and two years later took his M.D., receiving a gold medal for his thesis on "The Anatomy of the Cetacea." At this time he was promoted from junior to senior demonstrator of anatomy under Sir William Turner. This position he held for six years, while at the same time he lectured on physiology at the Royal Dick Veterinary College. In 1882 he went to Dublin to fill the chair of Anatomy at the Royal College of Surgeons in Ireland, and at the end of the following year he was transferred to a similar position in Trinity College. In Dublin he at once began to make himself felt in the improvement and shaping of medical education, and raised his own department to a high level of efficiency. At the same time he contributed largely to the literature and made important additions to the knowledge of human and comparative anatomy. His "Manual of Practical Anatomy," written when in Dublin, has for many years been largely used by medical students in every school, especially by those who were determined upon an honours course. In the London schools it has become the standard text-book for the dissecting-room. To many students accustomed to the older manuals it came almost as a new revelation of anatomy, for both by the clearness—we might almost say the eloquence—of its descriptions and by its admirable directions for dissection it rendered readily accessible those difficult regions of anatomy which had rarely been thoroughly explored by the "average student." The section dealing with the abdomen is in itself sufficient to warrant this praise, both the arrangement of the peritoneum and the topography of the viscera being described in such a manner as to render their visualisation a comparatively simple matter after they had once been dissected under the guidance of the manual. The arrangement of the pelvic fascia and the dissection of the neck and brain are dealt with in an equally masterful manner, and we can hardly call to mind any text-book which has been, and will continue to be, of such practical assistance to a very large number of medical students. In 1902 the "Text-Book of Anatomy" appeared under his editorship. Amongst his more original works were his "Report on Marsupialia Collected during the Voyage of H.M.S. *Challenger*," "On the Lumbar Curve in Man and Apes," "On the Surface Anatomy of the Cerebral Hemispheres," "A Research into the Relation between Giantism and Acromegaly," and "A Memoir on the Microcephalic Idiot." He was an editor of the *Journal of Anatomy and Physiology*.

In 1903, on Sir William Turner's appointment as Principal of the University of Edinburgh, Professor Cunningham was offered the chair of Anatomy thus vacated. The offer was accepted and Professor Cunningham returned to the scene of his early work and to the chair of his former chief. His return was cordially welcomed on account of his distinction as an anatomist and his character as a man. In Edinburgh he took a leading part in the medical faculty of the University, of which he was for some years Dean. He had ideas and schemes regarding the school which had begun to get beyond the speculative stage, and his tactful handling of them will be missed. During the brief period of his occupancy of the Edinburgh chair he was one of the commissioners sent out to inquire into the medical administration during the South African war, and more recently he took a leading part in arranging the medical administration in Scotland of Mr. Haldane's scheme for the establishment of the Territorial Force. Professor Cunningham's attainments and work were more fully recognised than falls to the lot of most men, but his remarkable attainments and qualities were deeply impressed upon all who knew him. He was a Fellow of the Royal Society; he held the honorary degrees of M.D. and D.Sc. of Dublin, of D.C.L. from Oxford, and of LL.D. from both St. Andrews and Glasgow. He was at various times secretary, Vice-President, or President of the Royal Zoological Society of Ireland, of the Anthropological Section of the British Association, of the Royal Dublin Society, and of the Royal Society of Edinburgh. His was truly a life full of excellent work and of well-merited reward. He has left a mark on the two great medical schools of Dublin and Edinburgh, with which they may justly be gratified and which may be looked on as having the measure of endurance which belongs to work done as Cunningham did his. His influence was great and on every side good. Along with a quiet resoluteness of purpose he was simple and gentle in manner, kindly and friendly to all. He gained the mastery by tact and gentleness and persuasiveness, and appears never to have made an enemy.

He was a loyal and devoted friend, and his friends were devoted to him. Seldom has a death occurred in the profession in Edinburgh where the sense of personal loss has been wider and deeper than it has been at Cunningham's premature loss, and much sympathy is felt for Mrs. Cunningham and his family.

On Saturday, June 26th, the funeral took place, the interment being in the Dean Cemetery, where very many of those who once were prominent in Edinburgh life are also buried. On Sunday a memorial service was held in St. Giles's Cathedral, when the Rev. Professor Kirkpatrick, D.D., Dean of the Faculty of Divinity, preached from the text: "Clouds and darkness are round about Him; righteousness and judgment are the habitation of His Throne." The preacher said that no man was held by his colleagues in the Senatus in higher honour or warmer affection than Cunningham. "The bright and sunny temperament, the warmth of heart, the transparent simplicity that was unconscious of its own greatness, the nameless grace that was the index of beauty of spirit, endeared him to all with whom he came into contact. No one could associate with him for a little without carrying away an indelible impress of a singularly lovable personality."

An Irish correspondent writes: "The announcement of the death of Professor Cunningham has probably nowhere produced such uniform sorrow as in the Irish metropolis, which was privileged to enjoy his genial presence and enlightened teaching during a large part of his professional career. His appointment to the duplex Chair of Anatomy in the Royal College of Surgeons in Ireland in 1882 marked the initiation of a new epoch in the teaching of anatomy in Dublin. Dublin had always been noted for its facilities for the acquisition of anatomical knowledge, for Ireland out of her poverty has supplied liberally the anatomical schools of her metropolis with ample material for research in human anatomy. But at the time of Professor Cunningham's arrival a system of 'cramming' had sprung up especially in the private schools of the city, a system which had its origin in the exigencies of supplying rapidly a medical service of some sort for the British troops in the Crimean war. It is true that the leading anatomists in Dublin knew and taught their science at least as well as it was taught anywhere else in the world. But a great deal of corruption had crept in, and the skill of the grinder was a great temptation to the 'chronic' to expend as little of his own intellectual energy as possible in the acquisition of the modicum of knowledge required to satisfy the Board of Examiners. Professor Cunningham set himself at once to extinguish the methods of private tutors and copious dissecting-room demonstrations, and encouraged the student to attend the authorised lectures and to secure his practical knowledge by his own investigation of the subject. 'Practical work' became the scientific watchword of the period, and the teaching of the Dublin school was completely revolutionised on the appointment of Sir Lambert Hepenstal Ormsby as examiner in anatomy soon after the election of Professor Cunningham. A great many changes have occurred in consequence of the modifications of teaching and practice introduced by Professor Cunningham and Sir Lambert Ormsby; and the 'private schools' have all vanished. The accomplished Scotch anatomist stayed but a short time in the school which so rapidly learnt to appreciate his value, but he left behind him an ineffaceable record of work which gained him so speedily the chair of Anatomy in Dublin University."

EDMUND MARSHMAN RUSSEL RENDLE, M.R.C.S. ENG., L.S.A.,

CONSULTING SURGEON TO THE ROYAL PLYMOUTH EYE INFIRMARY.

Mr. E. M. Russel Rendle died at his residence, Caton, Ivybridge, Devon, on June 23rd, in his seventy-seventh year The deceased was the son of the late Dr. E. Rendle of Plymouth. He was educated at Glenalmond School, and received his medical education at King's College Hospital, London. He qualified M.R.C.S. Eng. and L.S.A. in 1854 and 1853 respectively, and shortly afterwards joined his father, who was then in partnership with the late Mr. Joseph Square at Plymouth. Mr. Rendle was for many years on the staff of the Plymouth Public Dispensary, but it was in connexion with the Plymouth Royal Eye Infirmary that his chief honorary surgical work was done. He was greatly devoted to the institution, and from 1866 to 1893 he was honorary surgeon. He then became a member of the consultative staff, and in 1896 his long and valuable services were recognised by his election to the presidency of the charity. For many years Mr. Rendle was honorary medical officer to the Devon and Cornwall Orphan Asylum. He was at one time surgeon to the old South Devon Militia, now the 3rd Devonshire Regiment. Outside his professional work he took a great interest in the well-known newspaper, the *Western Morning News*. Early in the history of that paper he became one of the directors and was a managing director until 1902, when he retired. Mr. Rendle was a prominent figure in the estimation of the "Three Towns." As a practitioner his judgment was sound, and his skill of no mean order. He was always particularly kind to his poorer patients and was beloved by a large and varied number of friends, and acquaintances. He retired from practice ten years ago, and five years ago he left Plymouth to reside at Ivybridge.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Thumm, Privy Councillor and physician to the Children's Hospital at Pforzheim, who was 82 years of age, suddenly from apoplexy while at the bedside of a patient.—Dr. Alfredo Thomé de Britto, professor of medical diagnosis in the University of Bahia.—Dr. Wilhelm Müller, formerly professor of pathological anatomy in the University of Jena.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—E. W. Archer (Sections I. and II.), St. Mary's Hospital; J. Bramley-Moore (Section II.), University College Hospital; J. H. Clarke (Section II.), St. Mary's Hospital; P. N. Panton (Sections I. and II.), Cambridge and St. Thomas's Hospital; and H. O. West (Sections I. and II.), King's College Hospital.

Medicine.—E. M. Adam (Sections I. and II.), Charing Cross Hospital; E. W. Archer (Sections I. and II.), St. Mary's Hospital; L. Ettinger, C. P. and S. New York; J. A. Koch (Section I. and II.), Amsterdam; S. H. Scott (Section I.), London Hospital; and H. O. West (Sections I. and II.), King's College Hospital.

Forensic Medicine.—E. M. Adam, Charing Cross Hospital; E. W. Archer, St. Mary's Hospital; J. M. Burke, Middlesex Hospital; J. H. Clarke, St. Mary's Hospital; and H. O. West, King's College Hospital.

Midwifery.—E. W. Archer, R. J. Cyriax, and G. Holmes, St. Mary's Hospital; and H. O. West, King's College Hospital.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—E. M. Adam, E. W. Archer, J. Bramley-Moore, J. H. Clarke, L. Ettinger, J. A. Koch, P. N. Panton, and H. O. West.

UNIVERSITY OF CAMBRIDGE.—At the First Examination for medical and surgical degrees held recently the following candidates were successful in the subjects indicated:—

Part I., Chemistry and Physics.—M. L. Atkinson, Emmanuel; H. Bartlett, Caius; P. R. Boswell, Queens'; C. W. Bower, Caius; H. F. Brice-Smith and M. Chadwick, St. John's; V. M. Coates, Caius; G. R. E. Colquhoun, Trinity; L. P. Costobadie, Caius; D. D. Evans and L. H. B. Evans, King's; B. J. L. Fayle, Emmanuel; L. A. Graham, Caius; G. L. Grant, Queens'; J. Hardy, Caius; R. J. Hearn, Jesus; J. H. Jordan, Emmanuel; W. H. Livens, Christ's; O. C. McCaw, Caius; J. B. McFarland, Sidney Sussex; F. W. Maunsell and S. H. Miles, Clare; H. L. Milsom, Trinity; G. Miskin, Caius; H. R. Pollock, Trinity; G. D. Read, St. John's; A. P. Saint, Downing; C. H. Savory, Trinity; J. W. Sewill, Clare; A. G. Shera, Emmanuel; R. P. A. Starkie, Trinity; J. R. Stoddart, St. John's; R. Stott, Trinity; A. B. Uloth, Pembroke; D. C. L. Vey, Clare; and G. C. Wells-Cole, Caius.

Part II., Elementary Biology.—E. H. R. Altounyan, Emmanuel; A. L. Anthony, St. John's; L. W. Batten, Sidney Sussex; M. W. K. Bird, Emmanuel; P. R. Boswell, Queens'; E. J. Bradley, Jesus; C. C. Brewis, Downing; H. F. Brice-Smith, St. John's; W. E. H. Bull, Caius; B. Burnside, Clare; G. D'R. Carr, Caius; M. Chadwick, St. John's; R. H. Clarke, Caius; G. R. E. Colquhoun, Trinity; L. P. Costobadie, Caius; G. M. Cowper, Trinity; D. Crellin, St. John's; H. L. Cronk, Jesus; E. C. Cunnington, Corpus Christi; C. D. Day, Downing; C. S. Dobson, Queens'; H. Dunkerley, Downing; A. T. Edwards, St. John's; D. D. Evans and L. H. B. Evans, King's; J. M. Evatt, Caius; B. J. L. Fayle, Emmanuel; L. S. Fry, King's; E. A. Gibb, Emmanuel; C. L. Gimblett, Caius; G. L. Grant, Queens'; R. Hargreaves, Caius; R. J. Hearn, Jesus; J. H. Jordan, S. D. Kilner, and A. A. Lees, Emmanuel; W. H. Livens, Christ's; W. A. H. Lowry, Caius; W. M. Lupton, Clare; F. W. Maunsell, Caius; S. H. Miles, Clare; G. Miskin, Caius; C. C. Okell, St. John's; C. Y. Oliver, Magdalen; H. B. Padwick, Emmanuel; J. S. Pooley, Trinity; G. D. Read, St. John's; J. R.

Rees, King's; A. P. Saint, Downing; R. P. A. Starkie and R. Stott, Trinity; M. Tin, Downing; E. W. Todd, Trinity; D. C. C. Vey, Clare; T. T. B. Watson, Christ's; G. H. Wells-Cole, Caius; A. M. Wheeler, Sidney Sussex; and H. G. Wiltshire, Emmanuel.

TRINITY COLLEGE, DUBLIN.—At examinations held recently the following candidates passed in the subjects indicated:—

FINAL EXAMINATION IN MEDICINE.

Part II., Surgery.—Thomas A. Hughes, Ralph T. St. J. Brooks, David Duff, Eric J. Powell, John D. Kernan, George E. Craig, Edwin B. Bate, Frederick R. Sayers, David J. Miller, Frederick G. Anderson, Charles G. S. Baronsfeather, James P. S. Dunn, Wellesley R. Allen, and Denis J. Stokes.

M.Ch. Degree.—J. Singleton Darling.
M. Dent. Sci. Degree.—Ernest S. Friel.

INTERMEDIATE MEDICAL EXAMINATION.

Part I.—John Colgan, Jacobus M. S. Gericke, Frederick B. M'Carter, Eileen Hewitt, Hubert T. Bates, Robert A. Flood, James N. Armstrong, Georgina Revington, Robert G. Ball, Dorothy K. Milne, William E. Featherstonhaugh, Edwin F. O'Connor, Jerome H. Counihan, Jevan H. Powell, Arthur P. Draper, Hugh G. Traver, Robert H. C. Lyons, Cecil Rutherford, William Frier, Oswald V. Burrows, James H. Grove-White, Richard L. Grandy, Antonie C. Redelinghuys, Humphry L. Blackley, Hugh E. Williams, and Frederick A. Burke.

Purser Medal in Institutes of Medicine.—Jacobus M. S. Gericke.
Medical Travelling Prize and Banks Medal.—Albert Stals.
Banks Prize.—John L. Phibbs.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Professor Neuberg, assistant in the Chemical Department of the Pathological Institute, is resigning his post in the Medical Faculty, having been appointed to the charge of the Chemical Department in the Veterinary School. —*Budapest:* Dr. Némath has been recognised as *privat-docent* of Forensic Mental Pathology.—*Greifswald:* Dr. Heinrich Gebb, assistant in the Ophthalmological Clinic, has been recognised as *privat-docent* of Ophthalmology.—*Halle:* Dr. Hermann Schmidt-Rimpler, who is now more than 70 years of age, is resigning the Professorship of Ophthalmology. The names of two ophthalmic surgeons have been published as having been appointed to the chair. Whether the duties of the chair are to be divided or whether one of the announcements was made in error does not as yet seem clear.—*Hamburg:* Dr. Friedrich Jessen, formerly physician to a hospital in Hamburg but now practising at Davos, has been granted the title of Professor.—*Heidelberg:* Dr. H. Kossel, Professor in the University of Giessen, has been appointed Professor of Hygiene.—*Innsbruck:* Dr. Alfred Decastello Ritter v. Rechtwahl has been recognised as *privat-docent* of Medicine. Dr. E. von Hibler, *privat-docent* of Pathological Anatomy, has been promoted to an Assistant Professorship.—*Leipsic:* Dr. Paul Sick has been recognised as *privat-docent* of Surgery.—*Prague* (*German University*): Dr. Friedrich L'ippich has been recognised as *privat-docent* of Physiology. (*Bohemian University*): Dr. Tobiasek has been recognised as *privat-docent* of Orthopædic Surgery.—*Rio de Janeiro:* Dr. Miguel Pareira has been appointed to the chair of Clinical Medicine.—*Rostock:* Dr. Brüning, *privat-docent* of children's diseases, has been promoted to an Extraordinary Honorary Professorship.—*Strasburg:* Dr. Kieffer has been recognised as *privat-docent* of Odontology.—*Tübingen:* Dr. E. Letsche, assistant in the Physiological Institute, has been recognised as *privat-docent* of Physiological Chemistry. —*Vienna:* Dr. Ludwig Teleky has been recognised as *privat-docent* of Social Medicine.

SCARLET FEVER AND MILK IN THE THAMES VALLEY.—The public health committee reported to the London County Council on June 29th with reference to certain cases of scarlet fever notified by the medical officer of health of Westminster which he suspected might be attributed to infected milk-supply. Other local outbreaks were notified in Chelsea and Wandsworth, and at Kingston-on-Thames and other parts of Surrey. The cases appeared to be traceable to the same wholesale supply, the company were communicated with, and they stopped the supply from the suspected depôt. On June 20th Dr. W. H. Hamer and Dr. E. Seaton, medical officer of health of Surrey, met the manager of the company and proceeded to a particular farm—the only one from which milk had been supplied to all the localities known to be involved. Inquiries disclosed the fact that five recent cases of scarlet fever had occurred in a family the members of which had consumed milk from the farm, one of the persons affected being employed at the farm. All possible steps had been taken to prevent further infection. The committee retained the services of Dr. Mervyn H. Gordon, of St. Bartholomew's Hospital, to undertake any bacteriological examinations necessary.

THE CHILDREN'S CONVALESCENT HOME, WESTON-SUPER-MARE.—The annual meeting of the subscribers to this institution, which is a branch of the Bristol Children's Hospital, was held at Weston-super-Mare on June 15th, under the presidency of Lady Smyth. The medical report stated that during 1908 323 children had been admitted. The financial statement showed an adverse balance of £87.

UNITED HOSPITALS ATHLETIC CLUB. — The United Hospitals Athletic Club's annual championship meeting took place at the Stamford-bridge ground on June 23rd, when London Hospital won the challenge shield with 59 points, Guy's Hospital being second with 55 points, and St. Bartholomew's Hospital third with 29 points. The 100 yards, high jump, throwing the hammer, long jump, and quarter mile events were all won by London Hospital.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the executive committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on June 18th. There were present: Dr. F. de Havilland Hall (in the chair) Dr. J. Pickett, Dr. J. W. Hunt, Dr. St. Clair B. Shadwell, Mr. J. Brindley James, Dr. W. Knowsley Sibley, Dr. W. G. Dickinson, Dr. Frederick S. Palmer, Mr. F. S. Edwards, Dr. W. A. Dingle, Mr. H. P. Symonds (Oxford), Dr. F. J. Allan, Dr. M. Greenwood, Mr. J. F. Colyer, Mr. E. Bartlett, and Dr. J. B. Ball.

A FALSE DECLARATION OF STILLBIRTH.—An anonymous letter recently called attention at Greenwich to the case of a newly born child whose father had signed a declaration for the purpose of burial to the effect that the child was stillborn. The exhumation of the body followed, and medical evidence at the inquest held by Dr. H. R. Oswald showed that the child apparently had had a separate existence and breathed well, but subsequently had died from suffocation. One of the witnesses was an uncertified woman practising as a midwife who admitted having told the undertaker in the father's presence that the infant was stillborn, although, in fact, it was to her knowledge born alive. It was also apparent from the father's evidence that he wilfully deceived the Registrar. The jury returned a verdict of "Death from accidental suffocation."

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held at Caxton House, Westminster, on June 24th, Dr. F. H. Champneys being in the chair. The following charges alleged against the midwife Emma Pitman were considered:—That having been in attendance as a midwife at a confinement on Jan. 2nd, 1909, and following days, she falsely entered in her register of cases that her last visit was on Jan. 12th, and that the condition of the mother was then good, whereas in fact she was in attendance on the mother until her death on Jan. 14th. Also that being in attendance as a midwife at a confinement, the patient suffering from persistently offensive lochia with abdominal tenderness and a rise of temperature above 100·4° F., she did not explain that the case was one in which the attendance of a registered medical practitioner was required, nor did she hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that it might be immediately forwarded to the medical practitioner, as required by Rules E. 18 and 19. After deliberating on the case the Board severely censured this midwife. The following charges alleged against the midwife Eliza Thompson were considered:—That being in attendance as a midwife at three confinements, and having advised in each case that medical aid should be summoned, she failed to notify the local supervising authority thereof, as required by Rule E. 20, and that she habitually neglected, after repeated warnings, to do so. After deliberating on the case the Board censured this midwife. At the ordinary meeting of the Board held on the same day, the following business, *inter alia*, was transacted. A letter from Dr. J. C. Thresh, county medical officer of Essex, as to the refusal of medical practitioners in a country district of Essex to attend when summoned on the advice of a midwife was further considered. A letter on the same subject was considered from Mrs. Gifford, honorary secretary of the Aldham, Copford, and Mark's Tey Nursing Association. The secretary, Mr. Duncan, was instructed to write that the Board reply that no blame can attach to the midwife if she

strictly carries out the rules of the Board as to summoning medical assistance.

GIFT TO THE LONDON HOSPITAL MEDICAL COLLEGE.—The London Hospital Medical College Endowment Fund has received a gift of £2000 through the kindness of Mr. Luther Martin, an old student of the college.

AT the annual general meeting of the London Nottinghamshire Society, held on June 24th, Mr. Sydney Stephenson was elected president of the society for 1909-10.

THE WORKMEN'S COMPENSATION ACT.—In a compensation case heard at Newton Abbot (Devon) county court recently Judge Lush-Wilson said that even if a man had an inherent defect, such as heart disease, before an accident the employer was still liable.

THE COLONIAL NURSING ASSOCIATION.—The annual meeting of this association was held at the invitation of Lady Wantage at 2, Carlton-gardens, Carlton House-terrace, W., on June 24th, when Princess Christian of Schleswig-Holstein was present. Sir Albert Hime presided in the unavoidable absence of Lord Ampthill, the President. In his plea for additional help, which is urgently required to extend the good work done by the association, the chairman remarked that the total number of nurses employed during the year was 209, of whom 62 were employed as private nurses and the remainder in Government institutions. Colonel Seely (Under Secretary of State for the Colonies), in moving the adoption of the report, paid a warm tribute to the help of Mr. and Mrs. Chamberlain. The Colonial Office, he said, had reason to be especially grateful to the association, which relieved the Government officials of the very difficult task of selecting candidates for nurses in the colonies. Colonel Sir Percy Girouard seconded the motion, and was supported by Sir H. H. Bell. The report having been carried, Sir Alfred Jones, in proposing a vote of thanks to Princess Christian for her presence, remarked that he himself would pay the deficit of £111 which was shown on the balance sheet.

LITERARY INTELLIGENCE. — Messrs. Rebman, Limited, announce a new book on "Accidental Injuries to Workmen with Reference to Workmen's Compensation Act, 1906," by Mr. H. Norman Barnett, with an article on Injuries to the Organs of Special Sense by Dr. Cecil E. Shaw, and a legal introduction by Mr. Thomas J. Campbell. In view of the very grave responsibility which the Act places upon medical men, and the importance of a report being correct as to diagnosis and accurate as to prognosis, a chapter has been devoted to the making of reports. Messrs. Rebman have also just issued Professor de Giovanni's "Clinical Commentaries Deduced from the Morphology of the Human Body," translated from the Italian by Mr. John J. Eyre of Rome, and the sixth edition of Mr. J. Bland-Sutton and Dr. A. E. Giles's well-known little book on the Diseases of Women, a handbook for students and practitioners. The same publishers also state that they have almost ready for immediate publication the English translation of Professor Eugenio Tanzi's "Text-book of Mental Diseases," which has been prepared by Dr. William Ford Robertson of the Scottish Asylums, Edinburgh, and Dr. T. C. Mackenzie of the Inverness District Asylum.—Messrs. Baillière, Tindall, and Cox announce that on and after July 1st they will take over the publication of all the books by Sir William Whitla, including "Materia Medica," "Practice of Medicine," and his well-known "Dictionary of Treatment," a new edition of which will be issued in the autumn. They will also in future publish Green's "Pathology and Morbid Anatomy," a tenth edition of which is now in circulation. These changes are the result of the retirement from business after more than 40 years' work of Mr. William Renshaw, the head of the old-established firm of Henry Renshaw, which will now cease to exist. Messrs. Baillière, Tindall, and Cox have also the following new works and new editions in active preparation: Dieulafoy's "Text-book of Medicine," translated by V. E. Collins, M.D. Lond; "Manual of Massage," by M. A. Elliston, L.O.S., third edition; "Practical Microscopy," by F. Shillington Scales, F.R.M.S., second edition; "Aids to Analysis of Food and Drugs," by C. G. Moor, F.I.C., and W. Partridge, F.I.C., second edition; "Sanatorium Treatment of Tuberculosis," by Rufenacht Walters, M.D.; "Surgical Anæsthesia," by Bellamy Gardner, M.R.C.S.; "Aids to Mathematics of Hygiene," by R. Bruce Ferguson, M.D., third edition; "Chemical Notes and Equations," by G. H. Gemmell, F.I.C., second edition; "Gynæcological Therapeutics," by S. J. Aarons, M.D.; "Incidence of Sex and Age on Disease," by J. Grant Andrew, F.F.P.S.; "Menstruation and its Disorders," by Arthur E. Giles, M.D., second edition; also a reprint of the second edition of "Minor Maladies," by Leonard Williams, M.D.

UNITED SERVICES MEDICAL SOCIETY.—There will be no meeting of this society in the month of July. The next meeting will take place at the Royal Army Medical College, Millbank, S.W., on Wednesday, Oct. 13th, 1909.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN.—The Chesterfield medal in Dermatology issued by St. John's Hospital for Diseases of the Skin, Leicester-square, London, W.C., has this year been awarded to Dr. C. A. McBride.

A TUBERCULOSIS EXHIBITION AT THE WHITE CITY.—Preparatory to the opening of tuberculosis exhibitions in various centres in England, the exhibits recently shown at the Tuberculosis Exhibition at Whitechapel, which were described in THE LANCET of June 12th, p. 1710, have been taken to the White City at Shepherd's Bush.

DONATIONS AND BEQUESTS.—Under the will of the late Mr. James Shaw of Liverpool the Accrington Cottage Hospital will receive £500.—By the will of the late Mrs. Annie Fulton the Cardiff University College will benefit to the extent of over £10,000.—The late Miss M. Hezmalhalch has left legacies of £2000 each to the Harrogate Bath Hospital and to the Harrogate Cottage Hospital, £500 to the Leeds Hospital for Women and Children, £250 to the Leeds District Nursing Institution, and £250 to the Ida Convalescent Home at Cookridge. Large sums will also be received by the Leeds Infirmary and by the Leeds Dispensary.—The late Miss Ann Hill of Peterborough has left £2000 to the Hunstanton Convalescent Home.—Under the will of Mrs. Hely-Hutchinson of Brighton the St. Bernard's Home for Invalid Ladies, Brighton, will receive £500.—The late Dr. Edward Bland of Derby bequeathed by will £500 each to the Midland Institution for the Blind, Dr. Barnardo's Homes, and the Nottingham General Hospital; £200 to the Nottingham Children's Hospital; and £100 to the Nottingham General Dispensary.—The Royal Dental Hospital, Leicester-square, which has just completed its jubilee, has received a donation of £200 from the trustees of Smith's (Kensington Estate) Charity and £26 5*s.* from the Worshipful Company of Mercers.—Under the will of the late Mrs. C. S. Greenhill the following amongst other legacies have been announced: £2000 to the Royal Free Hospital, Gray's Inn-road; £1000 each to the Middlesex Hospital, the Children's Hospital, Paddington Green, and the West London Hospital, Hammersmith; £200 each to the West London Hospital Ladies' Association and the Ladies' Association of the Royal Free Hospital.—The Adelaide Hospital, Dublin, and the Royal City of Dublin Hospital will each receive £500 under the will of the late Mrs. J. Wakefield of Kildare.—The committee for the removal of King's College Hospital has received £1000 from the executors of the late Mr. C. E. Layton, being the first instalment of a legacy of £2000 bequeathed to the fund to provide for the erection of a chapel in the new hospital. A further donation of £100 has also been received from Lady Hambleden, being her twelfth contribution to the fund.—The honorary secretaries of King Edward's Hospital Fund for London have received at the Bank of England, under an order of the High Court, the sum of £7348 17*s.* 2*d.*, the residuary estate of the late Mr. Thomas John Bell, bequeathed for charitable purposes.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Sale of Margarine Bill.

THE Sale of Margarine Bill has been completely transformed by a Standing Committee of the House of Commons. The clauses prohibiting the use of colouring matter in margarine were cut out, and the only one of any importance which remained was a section imposing increased penalties on persons who fraudulently sold margarine for butter. Even that section was materially altered. As passed by the Committee it reads: "Any person guilty of an offence under any Act in respect to

the sale of margarine shall be liable on conviction under the Summary Jurisdiction Acts for a first offence to a fine not exceeding £20, for a second offence to a fine not exceeding £50, or in the alternative to imprisonment with or without hard labour, for a period not exceeding three months, and for a third or any subsequent offence to imprisonment with or without hard labour for a period not exceeding six months without the option of a fine."

Mr. KILBRIDE, an Irish Member, was in charge of the Bill. One of the most striking features of the debate on it was the absence of any representative of the Government departments which might have been considered to take an interest in the shaping of the Bill. It is true that Mr. T. W. RUSSELL, the Vice-President of the Irish Department of Agriculture, attended. The frauds, which the Bill was designed to check, it was said, took place in England, but as this lay quite outside the scope of his department, Mr. RUSSELL refrained from offering departmental guidance to the Committee on the amendments which were put forward. On the first day of the Committee's proceedings, some lively protests were made that no representative of the Local Government Board, the Board of Trade, or the Board of Agriculture was present. On the second day the same situation arose. It was understood that each of the three departments concerned did not admit that the Bill fell within its administrative scope. Some honourable Members warmly declared that the Committee was being treated with disrespect, and although a motion was made to adjourn the sitting the majority decided to continue the proceedings and to finish the committee stage of the Bill. This course was followed.

Metropolitan Ambulances Bill.

Sir WILLIAM COLLINS made a vain appeal to the House of Commons at the time for unopposed business on June 24th to give a second reading to the Metropolitan Ambulances Bill. His object was to have the measure sent to a committee to have the machinery to give effect to an improved ambulance service in the metropolis considered. Objection being taken to the motion for the second reading, the further consideration of the Bill was postponed.

The Central Midwives Board.

The report on the work of the Central Midwives Board for the year ending March 31st, 1909, has been presented to the House of Commons.

The General Medical Council.

A copy of "The Representations of the General Council of Medical Education and Registration of the United Kingdom to the Privy Council under Section 10 of the Medical Act, 1886," has been laid on the table of the House of Commons.

Anæsthetics Bill.

The text of Mr. COOPER'S Anæsthetics Bill is now available. It has the support of Sir WALTER FOSTER, Sir WILLIAM COLLINS, Sir JOHN BENN, Mr. ACLAND ALLEN, Mr. BARNES, Dr. V. RUTHERFORD, Mr. BERTRAM STRAUS, and Mr. CARR-GOMM. Its object is to regulate the administration of anæsthetics, and, although drawn on similar lines to the Bill on the same subject recently withdrawn by Mr. COOPER, it differs from it in regard to its treatment of dentists. A memorandum attached to the Bill states that it is designed to require a medical practitioner or a dentist applying for registration on or after Jan. 1st, 1912, to submit evidence of having received practical instruction in the administration of anæsthetics, and to prohibit any person not a registered medical practitioner or a registered dentist administering an anæsthetic except under certain conditions.

Clause 1 of the Bill runs as follows: "On and after the first day of January one thousand nine hundred and twelve, no person shall be registered under the Medical Acts or the Dentists Acts in respect of any qualification referred to in any of those Acts unless he shall have produced evidence that he has received theoretical and practical instruction in the administration of anæsthetics."

The second clause relates to the penalties attaching to the administration of anæsthetics by unauthorised persons. Its text is as follows:—"Any person not a registered medical practitioner or a registered dentist who shall administer or cause to be administered to any other person, by inhalation or otherwise, any gas or vapour, or drug, or mixture of drugs, solid or liquid, with the object of producing unconsciousness during any medical or surgical operation, examination, act, or procedure, or during childbirth, shall be liable on conviction before a court of summary jurisdiction for such offence, to a penalty not exceeding ten pounds, and, in the case of any subsequent conviction, to a penalty not exceeding twenty pounds: Provided that a person shall not be liable to a penalty under this section if in conducting such administration he was acting under the immediate direction and supervision of a registered medical practitioner or a registered dentist, or if the circumstances attending the administration were such that he had reasonable grounds for believing and did believe that the delay which would have arisen in obtaining the services of a registered medical practitioner or a registered dentist would have endangered life."

Clause 4 lays down that "any registered medical practitioner who gives a certificate of death in the case of any person dying while under the influence of an anæsthetic shall be liable, on summary conviction, to a penalty not exceeding five pounds."

The Registration of Nurses.

Delegates from four organisations interested in the registration of nurses attended a conference in one of the committee rooms of the House of Commons on June 23th. As a result of their deliberations with several Members of Parliament who have taken an interest in the subject, a representative committee has been appointed whose duty it will be to undertake the drafting of a Bill embodying a scheme of registration applicable to all parts of the United Kingdom, which may be accepted by all the organisations. Lord AMPTHILL was in the chair, and amongst the Members of Parliament present were Mr. MUNRO FERGUSON, Mr. CLELAND, and Mr. FINDLAY, all of whom have been identified with various proposals for the registration of nurses. Amongst the delegates of the Society for Nurses Registration were Lady HELEN MUNRO FERGUSON, Miss HALDANE, Dr. J. WALLACE ANDERSON, and Dr. BEDFORD FENWICK. The delegates from the Royal British Nurses' Association included Dr. W. BEZLY THORNE, Dr. COMYNS BERKELEY, Mr. JOHN LANGTON, Mr. ARTHUR E. J. BARKER, and Sir WILLIAM MACEWEN. From the Association for the Registration of Nurses in Scotland came Professor J. GLAISTER (Glasgow), Dr. J. O. AFFLECK (Edinburgh), Dr. G. R. LIVINGSTON (Dumfries), Dr. J. M. THOM (Glasgow), and Dr. D. J. MACKINTOSH (Glasgow). An Irish association was represented amongst others by Lady HERMIONE BLACKWOOD. There was also a large contingent of ladies representing these organisations. Nearly two and a half hours were spent in discussing various aspects of the subject of registration. Such matters as the need for united action in the promotion of a Bill and the desirability of holding a simultaneous qualifying examination at centres throughout the kingdom were discussed at length. Ultimately the conference found itself in sufficient agreement to proceed to the appointment of a committee of 20 members—five from each association—who will undertake the drafting of a Bill. It is hoped that it may be found possible to frame it on lines which will carry the united support of the organisations which were represented. The intention is to present this measure to Parliament next year.

HOUSE OF COMMONS.

THURSDAY, JUNE 24TH.

Tuberculosis in Ireland.

Mr. HUGH BARRIE asked the Chief Secretary to the Lord Lieutenant of Ireland how many deaths occurred in Ireland last year from tuberculosis; what was the rate per 1000 of the population; and would he give the same figures for the preceding two years.—Mr. BIRRELL replied: I am informed by the Registrar-General that the number of deaths in Ireland in 1908 from all forms of tuberculous disease was 11,293, or 2·6 per 1000 of the estimated population. The numbers in 1906 and 1907 were 11,756 and 11,679 respectively, or 2·7 per 1000 of the population.

The Pharmacy Act, 1908.

Mr. SNOWDEN asked the Secretary of State for the Home Department whether he was aware that town councils were continuing to license traders to sell poisonous preparations under the Pharmacy Act, 1908, where ample facilities existed; that the Halifax town council had licensed a firm of seedsmen for premises within 100 yards of nine qualified chemists, though this firm had been successfully prosecuted for illegally trading in poisons; was he aware that the town council of Barnstaple had licensed a trader for the purpose against the advice of the borough medical officer and borough coroner, that in this case it was admitted that existing facilities were ample, but that the application was granted on the ground that the applicant was an esteemed townsman who had been mayor of the borough; and whether he would take steps to stop this misuse of powers by town councils.—Mr. GLADSTONE answered: I understand from the Privy Council Office that it continues to receive complaints in this matter, and that it is making inquiry of the town council of Barnstaple; but I must point out that the question whether there are reasonable facilities in any district is one under the Act for the discretion of the local authority so long as it does not infringe the terms of the Act, and that neither the Privy Council nor the Home Office is empowered to interfere.

Children suffering from Favus.

Mr. RUPERT GUINNESS asked the Secretary of State for the Home Department whether children suffering from favus arriving from Russia and other Eastern countries were rejected by the Immigration Board at the Port of London.—Mr. GLADSTONE replied: During the last three years the London Immigration Boards have refused leave to land to four aliens from Russia, including one child of four years, whose parents were rejected from want of means, who had been certified by the medical inspector to be suffering from scalp disease, though in none of these cases was the disease specifically described as favus. I have no doubt that the Immigration Boards would, as a general rule, regard that disease as a proper cause for refusing leave to land.

Mr. RUPERT GUINNESS: Will the right honourable gentleman tell us whether he will consider the advisability of making it more difficult for these cases to come in in ships which are not inspected?

Mr. GLADSTONE: That is a matter which I have already under consideration.

Education (Provision of Meals) Act.

Answering Mr. SUMMERBELL, Mr. C. P. TREVELYAN (Parliamentary Secretary to the Board of Education) said that the Board had no complete statistics as to the number of education authorities who had in one way or another taken action under the Education (Provision of Meals) Act, but information was being collected on the subject. The Board had a list of the authorities who had been authorised to spend money out of the rates on the purchase of food.

MONDAY, JUNE 28TH.

Experiments on Living Animals.

Mr. GEORGE GREENWOOD asked the Secretary of State for the Home Department whether his attention had been called to the statement made by the inspector of experiments on living animals in the returns showing the number of such experiments during the year 1908 to the effect that one licensee who held Certificate B, authorising exposure

to X rays and the application of heat to the skin under anæsthetics, carried out these procedures without an anæsthetic; whether he would state the name of the licensee referred to and the number and nature of the experiments so performed without an anæsthetic; and whether he proposed to institute any legal proceedings in respect of the violation of the law in this case.—Mr. GLADSTONE said in reply: The experiments were 42 in number. Their nature is stated in the report and is quoted in the question. They were not of a severe character and might have been performed without an anæsthetic if the licensee had obtained the proper certificate for the purpose. The error of the licensee arose from a misconception as to the extent of his two certificates A and B, and was not so serious as to call for legal proceedings. The matter was dealt with by admonition.

TUESDAY, JUNE 29TH.

The Importation of Boneless Meat.

Mr. WATT asked the President of the Local Government Board whether he was aware that boxed boneless meat was not permitted as an import into Germany on account of the impossibility of satisfactorily examining it for disease; and would he say whether he would adopt a similar system in this country.—Mr. BURNS replied: I understand that the importation of fresh boneless meat into Germany is not allowed. As regards this country, regulations have been made on the subject under the Public Health (Regulations as to Food) Act, 1907. Boneless pork, not being scrap meat, can only be imported if it is officially certified as having been found free from disease in the country of origin, and all scrap meat, whether pork or not, is excluded.

Chief Sanitary Officers of Crown Colonies.

Mr. RAMSAY MACDONALD asked the Under Secretary of State for the Colonies whether he would furnish a list of the chief sanitary officers of the Crown Colonies stating, in respect of each, whether he possessed a diploma of public health, a diploma of tropical medicine, or a certificate of efficiency in the latter subject; what his experience was before receiving the appointment he now held, whether in addition to being chief sanitary officer he fulfilled any other duties of a public or a private character, and what salary he received as chief sanitary officer.—Colonel SEELY furnished the following written reply: The chief sanitary officer in a Crown Colony is usually the principal medical officer. The salaries and in many cases the qualifications and experience of the principal medical officers are given in the Colonial Office list. The details desired by my honourable friend shall be obtained and a list forwarded to him, but the collection of the material may take some time. It is the almost invariable practice at the present time to require that officers who are appointed to be sanitary officers in the Crown Colonies and Protectorates should possess a diploma of public health.

WEDNESDAY, JUNE 30TH.

Prevalence of Scarlet Fever.

Mr. RUPERT GUINNESS asked the President of the Local Government Board whether he was now in a position to state what action he proposed to take relative to the resolution which was unanimously passed by the managers of the metropolitan asylum district on Dec. 7th, 1907, asking the Local Government Board to cause an inquiry to be made into the cause of scarlet fever; and whether any, and, if so, what, further means could be adopted for its prevention, in view of the continued prevalence of the disease, notwithstanding the extensive isolation accommodation which had been provided.—Mr. BURNS wrote in reply: The matter is engaging my attention at the present time, and I hope shortly to be in a position to arrive at a decision with regard to it.

BOOKS, ETC., RECEIVED.

APPLETON, D., AND CO., New York and London.
Orthopedic Surgery for Practitioners. By Henry Ling Taylor, M.D., assisted by Charles Ogilvy, M.D., and Fred. H. Albee, M.D. Price 21*s.* net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.
The Campaign against Microbes. By Étienne Burnet, M.D. Translated from the French by E. E. Austen, F.Z.S. Price 5*s.* net.
Medical Reform Measures, including the Reform of the Medical Colleges. By H. Elliot-Blake, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A. Lond. Price 5*s.* net.

BOWES AND BOWES, Cambridge.
Notes from a Knapsack. By George Wherry, M.A., M.C. Cantab., F.R.C.S. Price not stated.

FUNK AND WAGNALLS COMPANY, London and New York.
Self-control and How to Secure It. (L'Éducation de Soi-même.) By Dr. Paul Dubois. Authorised translation by Harry Hutcheson Boyd. Price 6*s.*

GLAISHER, HENRY J., London.
Lectures on Hysteria and Allied Vaso-motor Conditions. By Thomas Dixon Savill, M.D. Lond. Price 7*s.* 6*d.* net.

GREEN, WILLIAM, AND SONS, Edinburgh and London.
A Handbook of the Diseases of the Nose and Throat. By Eugene S. Yonge, M.D. Edin. Price 9*s.* net.

HEADLEY BROTHERS, London.
Centenary Biography. Oliver Wendell Holmes. By Lewis W. Townsend. Price 2*s.* 6*d.* net.

LEHMANN, J. F., München.
Lehmann's Medizinische Atlanten. Band VII. Atlas und Grundriss der Röntgendiagnostik in der inneren Medizin. Herausgegeben von Dr. med. Franz M. Groedel. Price M.24.

LEWIS, H. K., London.
Immunity and Specific Therapy. By W. D'Este Emery, M.D., B.Sc. Lond. Price 12*s.* 6*d.* net.

LONGMANS, GREEN, AND CO., London, New York, Bombay, and Calcutta. (CHARITY ORGANISATION SOCIETY, London.)
The Annual Charities Register and Digest. 1909. By C. S. Loch. Price 5*s.* net.

RICHARDS, GRANT, London.
The Birds of the British Islands. By Charles Stonham, C.M.G., F.R.C.S., F.Z.S. With Illustrations by Lilian M. Medland, F.Z.S. In Twenty Parts. Part XIV. Price 7*s.* 6*d.* net.

RIDER, WILLIAM, AND SON, LIMITED, London.
How to Rest and Be Rested. By Grace Dawson. Price 6*d.* net.

ROUTLEDGE, GEORGE, AND SONS, LIMITED, London. (DUTTON, E. P., AND CO., New York.)
Infant Feeding by Artificial Means. A Scientific and Practical Treatise on the Dietetics of Infancy. By S. H. Sadler. Third edition. Price 3*s.* 6*d.*

SANITARY PUBLISHING CO., LIMITED, London.
Sanitary Law and Practice. By W. Robertson, M.D. Glasg., D.P.H., and Charles Porter, M.D., B.Sc., M.R.C.P. Edin. Price 10*s.* 6*d.* net.

SHAW AND SONS, London.
Symptoms and Their Interpretation. By James Mackenzie, M.D., M.R.C.P. Price not stated.

SPRINGER, JULIUS, Berlin.
Lehrbuch der Nervenkrankheiten. Herausgegeben von Dr. Hans Curschmann. Price M.24.
Die chemische Entwicklungserregung des tierischen Eies. (Künstliche Parthenogenese.) Von Jacques Loeb. Price, paper, M. 9; bound, M. 10.

STEINHEIL, G., Paris.
L'Hypophyse et la Médication Hypophysaire. Par M. le Docteur Arthur Delille. Price Fr. 6.

TREAT, E. B., AND CO., New York.
Transactions of the American Pediatric Society. Twentieth Session. Edited by Linnæus Edford La Fétra, M.D. Volume XX. Price not stated.

UNWIN, T. FISHER, London.
Abel. A Mystery. By Dr. David Sandler, Author of "The Bride of the Bosphorus." Price 2*s.* 6*d.* net.

VIGOT FRÈRES, Paris.
Conférences sur les Accidents du Travail et les Affections Traumatiques. Par le Dr. Olivier Lenoir. Préface du Professeur Paul Segond. Price Fr. 3.50.

VOSS, LEOPOLD, Hamburg.
Krolls Stereoskopische Bilder für Schielende. 28 farbige Tafeln. Von Dr. R. Perlia. Siebente verbesserte Auflage. Price M. 3.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)
Golden Rules of Dental Surgery. By Chas. W. Glassington, M.R.C.S., L.D.S. Ed. ("Golden Rules" Series, No. XIII. Third edition.) Price 1*s.*
Arthritis Deformans: comprising Rheumatoid Arthritis, Osteo-Arthritis, and Spondylitis Deformans. By R. Llewellyn Jones, M.B. Lond. Price not stated.
Pye's Surgical Handicraft. Fifth Edition. Revised and largely rewritten by W. H. Clayton-Greene, B.A., M.B., B.C. Cantab., F.R.C.S. Eng. Price 12*s.* 6*d.* net.

YEAR BOOK PRESS, THE, care of SWANN SONNENSCHEIN AND CO., LIMITED, London.
The Girls' School Year Book (Public Schools). April, 1909, to April, 1910. Price 2*s.* 6*d.* net.

YEAR BOOK PUBLISHERS, THE, Chicago. (G. GILLIES AND CO., Glasgow.)
The Practical Medicine Series. Under the General Editorial Charge of Gustavus P. Head, M.D. Volume II. General Surgery. Edited by John B. Murphy, A.M., M.D., LL.D. Series 1909. Price 8*s.*

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BOLUS, HARRY, has been appointed Honorary Medical Officer to the Royal United Service Orphan Home for Girls, Devonport.

CARRUTHERS, GEORGE, M.D., C.M. McGill, has been appointed Clinical Assistant to the Chelsea Hospital for Women.

COLYER, STANLEY W. R., M.B., B.S. Lond., D.P.H., has been appointed Assistant Medical Officer of Health of Southampton.

COX, E. HARVIE, M.B., Ch.B. Manch., has been appointed Honorary Surgeon to the Rochdale Infirmary.

DOHERTY, D., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Clonmany District of the county of Donegal.

FALCONER, ARTHUR WELLESLEY, has been appointed Assistant Anæsthetist to the Aberdeen Royal Infirmary.

FARRAR, W. W., M.B., B.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Misterton District of the county of Nottingham.

HEGARTY, J., M.D., M.S.Q.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Cloonbur District of the county of Galway.

HYNES, E. J., F.R.C.S. Edin., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Grassington District of the county of York.

LANGRAN, WILLIAM, L.R.C.P. & S. Edin., L.A.H. Dub., has been re-appointed Medical Officer of Health for the Axminster (Devon) Rural District Council.

MCEWEN, H. F., M.D. Halifax, has been appointed Clinical Assistant to the Chelsea Hospital for Women.

MACMILLAN, A. S., M.B., B.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Market Bosworth District of the county of Leicester.

MARTIN, E. K., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at University College Hospital.

O'HART, P., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Carney District of the county of Sligo.

PARRY, JOHN H., M.B. Tor., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

SMITH, JOHN WILLIAM, M.B., C.M. Edin., F.R.C.S. Eng., has been appointed one of the Medical Referees under the Workmen's Compensation Act, 1906, for County Court Circuits Nos. 7 and 8, to be attached more particularly to Salford and Manchester County Courts.

STEEN, ROBERT HUNTER, M.D. Lond., has been appointed Professor of Psychological Medicine at King's College.

SUCKLING, J. J., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at University College Hospital.

SUTTON, H. M., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Truro District of the county of Cornwall.

TASKER, H. L., M.R.C.S., L.R.C.P. Lond., has been appointed Obstetric Assistant to University College Hospital.

TEICHMANN, OSKAR. F.R.C.S. Eng., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

THOMAS, W. M., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Lostwithiel District of the county of Cornwall.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN, UNIVERSITY OF.—Examiners in Anatomy and Physiology.

BOURNEMOUTH, ROYAL BOSCOMBE AND WEST HANTS HOSPITAL.—House Surgeon for six months. Salary at rate of £80 per annum, with board, lodging, and washing.

BURNLEY, VICTORIA HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with residence, board, and washing.

CAIRO, EGYPT, SCHOOL OF MEDICINE.—Professor of Anatomy. Salary £800 per annum, with pension rights.

CANCER HOSPITAL, Fulham-road, London, S.W.—Surgeon.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 per annum, with board and lodging.

CHELTENHAM GENERAL HOSPITAL.—House Physician, unmarried. Salary £70 per annum, with board and lodging

CHESTER, CITY AND COUNTY.—Medical Officer of Health. Salary £500 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with board, apartments, and laundry.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—Assistant House Surgeon. Salary at rate of £60 per annum, with board, residence, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and lodging.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Physician. Salary at rate of £75 per annum, with board, residence, laundry, &c.

FIFE AND KINROSS SCHOOL BOARDS.—Five School Medical Inspectors (one female). Salaries of males £250, and of female £200 per annum.

GORDON HOSPITAL FOR FISTULA, &c., Vauxhall Bridge-road, S.W.—Resident House Surgeon.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Salary £25.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Physician, unmarried, for six months. Salary £30, with board and residence.

INVERNESS, NORTHERN INFIRMARY.—House Surgeon. Salary £100 per annum, with board, &c.

LEEDS, HOSPITAL FOR WOMEN AND CHILDREN.—Honorary Surgeon (Gynæcological and Obstetrical). Also House Surgeon for six months. Salary at rate of £50 per annum, with board.

LEEDS PUBLIC DISPENSARY.—Junior Resident Medical Officer. Salary £100 per annum, with board and lodging.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Junior Resident Medical Officer at Hampstead. Salary £50 per annum, with board and residence. Also Assistant Resident Medical Officer at Northwood. Salary £50 per annum, with board and residence.

NATIONAL HOSPITAL FOR THE RELIEF AND CURE OF THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Surgeon for Diseases of the Ear and Throat.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Third Resident Medical Officer. Salary £60 per annum, with board, residence, and laundry.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board and residence.

PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—Assistant House Surgeon for six months. Salary £50 per annum, with board, &c.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, E.—House Surgeon, also House Physician, both for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SOMERSET ADMINISTRATIVE COUNTY.—Medical Officer of Health. Salary £700 per annum.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Physician for six months. Salary at rate of £100 per annum, with rooms, board, and washing.

SUNDERLAND, MONKWEARMOUTH AND SOUTHWICK HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

SWITZERLAND, QUEEN ALEXANDRA SANATORIUM, Davos Platz.—Resident Medical Superintendent, unmarried. Salary £200 per annum, with board and residence.

TIVERTON, DEVONSHIRE, INFIRMARY AND DISPENSARY.—House Surgeon and Dispenser. Salary £80 and all found.

WALLINGFORD, BERKS COUNTY ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, attendance, &c.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Assistant House Surgeon, unmarried. Salary £75 per annum, with board, residence, and washing.

WEST HARTLEPOOL, CAMERON HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, rooms, and laundry.

WEST RIDING ASYLUM, Wadsley, near Sheffield.—Fifth Assistant Medical Officer. Salary £140 per annum, with board, &c.

WESTMINSTER HOSPITAL, opposite Westminster Abbey.—Assistant House Physician for two months. Board provided. Also Resident Obstetric Assistant for six months.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

WIMBLEDON, BOROUGH OF.—Medical Officer of Health and School Medical Officer. Salary £500 per annum.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House Surgeon. Salary £120 per annum, with board and lodging.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Physician, unmarried. Salary £65 per annum, with board, residence, &c.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House Surgeon. Salary £80 per annum, with apartments, board, and laundry.

WORCESTER COUNTY AND CITY ASYLUM, Powick.—Third Assistant Medical Officer. Salary £140 per annum, all found.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Maidenhead, in the county of Berks; at Barmouth, in the county of Merioneth; at Hythe, in the county of Kent; at Haywards Heath, in the county of Sussex; at Castletown Berehaven District in the county of Cork; at Harris, in the county of Inverness; at Ollaberry, in the county of Shetland; and at Bellanagh, in the county of Cavan.

Births, Marriages, and Deaths.

BIRTHS.

GAVIN.—On June 22nd, at the Medical Mission Home, Anand, Western India, the wife of Neil M. Gavin, F.R.C.S. Edin., of a son.

PRICE.—On June 25th, at The Croft, Orpington, Kent, the wife of C. E. Price, M.R.C.S., L.R.C.P., of a son.

MARRIAGES.

CUNNINGHAM—CLARENCE.—On June 17th, at All Saints, Chardstock, by the Rev. E. A. Midwinter, Vicar of St. Paul's, Marylebone, assisted by the Rev. A. W. Bull, Rector of the Parish, and the Rev. J. E. B. Brine, Vicar of Studley, Oxford, John Francis, eldest son of J. K. Cunningham, of Sec Tor, Axminster, to Phyllis Lovell, youngest daughter of L. B. Clarence, of Coaxden, Axminster, late Judge of the Supreme Court, Ceylon.

GIRDLESTONE—CHATTERTON.—On June 26th, at the parish church of Wimbledon, Gathorne Robert Girdlestone, M.A., B.M. Oxon., M.R.C.S., to Ina Mabel, second daughter of George Chatterton, J.P.

GUTHRIE—COX.—At St. Peter's Church, Rock Ferry, on June 26th, 1909, by the Rev. W. L. Paige-Cox, M.A., Alverly Edge, uncle of the bride, assisted by the Rev. T. J. Evans, M.A., Rock Ferry, Vicar of the Parish, Thomas Mansfield Gutbrie, M.B., Rock Ferry, eldest son of the Honourable Lord Guthrie, one of the Senators of the College of Justice, to Evelyn May Spear Cox, eldest daughter of the late Arthur S. Cox, Rock Ferry, and of Mrs. Cox, 74, Rock-lane West, Rock Ferry, and granddaughter of the late William Paton, Esq., Rock Ferry. At Home, 233, Bedford, Rock Ferry, 6th to 11th September inclusive.

HOSEGOOD—LEWIS.—On June 22nd, at St. John's Church, Blackheath, Samuel Price Hosegood, M.R.C.S. Eng., L.R.C.P. Lond., to Dorothy Margaret, widow of the late Robert Lewis.

SINGTON—COHEN.—On June 30th, at Liverpool, Harold S. Sington, M.D., M.R.C.S., L.R.C.P., of 23, Cleveland-gardens Hyde Park, to Ruth Louise, younger daughter of Mr. and Mrs. Louis S. Cohen, of The Priory, St. Michael's Hamlet, Liverpool.

DEATHS.

WILMOT.—After a short illness, in his 67th year, Alfred Edward Wilmot, M.R.C.S., L.R.C.P., J.P., of Burnham House, Burnham, Bucks.

WOOLRABE.—At Melbourne, on May 8th, aged 33 years, Margaret (Peggy), beloved wife of Frederick Woolrabe, M.R.C.P., F.R.C.S. Edin., D.P.H., of Riccarton, near Campbelltown, Tasmania, Health Officer to the Government of Queensland, Brisbane.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

"PHARMACY" EXTRAORDINARY.

WE do not remember to have noticed previously quite so impertinent an announcement as appeared in the *Daily Graphic* of June 28th, for it purported to emanate, not from one of the pirates of medicine, but from a man who owed the greater part of his living to its qualified practitioners whose skill he proposed to exploit. The advertisement ran in these words:—

> PRESCRIPTIONS (guaranteed copies) by eminent London and Continental Specialists; any disease; post free 2*s.* 6*d.* from retired West End pharmacist, Robertson, 6, Elmbourne Road, London, S.W.

The question of the ownership of prescriptions is a vexed one, but at any rate copyright in them cannot be vested in the man who makes them up. The position of the huckster is also curious. If he seeks to add to the attractions of his wares by disclosing to his customers the identity of the "London and Continental Specialists," from whom he had them in trust, it should not be hard for one of those gentlemen to obtain an injunction to prevent him from continuing his curious trade. If he does not give the names of the authors of the prescriptions how is the public to know the truth of his claims? Be all this as it may, the gross breach of professional decency which the advertisement implies is apparent, and deserves the notice of the Pharmaceutical Society of Great Britain, even though the "West-End pharmacist," having retired, has no further respect for its authority. But perhaps the chief feature of the advertisement is its fatuity, for although the advertiser offers prescriptions for "any disease" he does not suggest the method by which the disease may be recognised by its victim, neither does he show any authority to claim the skill which can match a disease with its appropriate prescription. In making these remarks we do not, of course, forget that the advertisement carries no proof of its *bona fides*, and for the credit of the profession of pharmacy we would prefer to regard it as the device of an ordinary adventurer to make money without doing any work for it.

ACIDOSIS AND DIABETES: A SUGGESTION.

To the Editor of THE LANCET.

SIR,—When the state of acidosis develops in diabetes mellitus alkalies are given in the form of a sodium salt alone or of a potassium salt alone, but never, as far as I can learn, are the alkalies combined.

The alkalies have two uses: they serve to neutralise obnoxious acids, and they replace what is abstracted from the tissues and the body fluids. The sodium salt will refurnish the fluids mainly, and the potassium salt the tissue cells. The sodium salt will not give much help to the nervous system, nor the potassium salt to the fluids, where, in the case of the blood, the sodium plays the essential part in respiration. Thus coma, which I presume to have a double origin—the state of the nerves and the failure of gaseous exchange—cannot be so efficiently retarded with one base as with two. But in diabetes there is deprivation of all four of the principal bases, and though the calcium and magnesium come mainly from the bones their loss elsewhere must result in derangement. Is there not, then, some reason for trying an experiment in which all four bases are used?

I am, Sir, yours faithfully,

Newcastle-on-Tyne, June 19th, 1909. W. T. GIBSON, A.R.C.S.

*** Our correspondent's suggestion is interesting, but in view of the marked depressant properties of potassium ions when injected intravenously great care would be necessary in regard to this base.—ED. L.

MEAT WARRANTY AND INSURANCE AGAINST TUBERCULOSIS.

MUCH has been heard of late on the subject of the meat warranty. In many quarters the farmers and butchers have adopted a system of mutual insurance, and the arrangement seems to be working satisfactorily. Lewes, the county town of Sussex, provides an example of this. At the market here something like 5000 bullocks and cows and over 3000 calves were sold during the year just ended, and the figures submitted to the annual meeting in connexion with the scheme of insurance against tuberculosis show that during the 12 months the sum of £258 1*s.* 6*d.* was collected from the sellers, while £111 0*s.* 6*d.* was paid out, including expenses, leaving a balance of £146 in hand. The payments were made for the following items:—

	£	*s.*	*d.*
3 cows and 3 parts of cows	46	10	5
13 pigs condemned...	22	13	1
1 steer and part of a runt steer	21	3	6
Part of 1 heifer...	10	13	0
1 calf	2	16	3
13 pigs' heads	1	13	6

Practically the whole of the money received from the insurance of cows was paid away and the balance in hand was almost entirely made up by the contributions received in respect of steers, heifers, and calves. Notwithstanding the thousands of animals passing through the market there was a very small percentage affected with tuberculosis. Pending legislation on meat warranty, the mutual insurance scheme appears excellent in more ways than one, and its adoption should certainly help to safeguard the public against tuberculosis. The Government has recognised the principle of compensation, but has not yet gone so far as to provide the money out of the Exchequer, and whatever be the future law on the subject it appears probable that a system of insurance will be adopted by the class that may be rendered liable to financial loss under its provisions.

THE HEALTH OF GERMAN EAST AFRICA.

EIGHT years have elapsed since the last British consular report on German East Africa was published, so that more than usual interest attaches to the new one recently laid before Parliament. It is written by Mr. Vice-Consul Douglas Young, who mentions incidentally that the white population on Jan. 1st, 1908, was estimated at 2845, as compared with 2629 on the same date in the preceding year; this represents an average of one to 135 square miles. In a newly colonised country possessing an area of 384,169 square miles, a census-taking of the native population is obviously an impossibility, but it is roughly calculated at between 8,000,000 and 10,000,000. Both the mortality and the birth-rate are believed to be greater on the coast than in the interior. On the coast this population is chiefly composed of Swahilis, a hybrid race of Arab and native strain, while the interior is peopled by various tribes of the Bantu race. The climate on the coast and in the lowlands is hot and enervating and in some places dangerous to Europeans, but the town of Dar-es-Salaam may be considered as comparatively healthy, thanks to its favourable situation in regard to the monsoons and to the good work done by sanitary authorities. The highlands of the interior are for the most part healthy and suitable for European settlement. The highest reputation in this respect is enjoyed by the Usambara highlands behind Tanga and by the Moschi district at the foot of Mount Kilimanjaro, which have consequently become the chosen localities of European planters. The chief diseases which claim victims among the white population are malaria, blackwater fever, and dysentery. The most prevalent diseases among the natives are small-pox, chicken-pox, malaria, and ankylostomiasis which constitutes a serious danger to the colony. It first broke out in 1906 in the coastal districts, especially Tanga and Rufiji, and spread rapidly, claiming many victims. The number of cases treated quarterly in the native hospital at Dar-es-Salaam alone has risen from an average of 20 to over 90 in recent years. The disease, which appears to be a particularly insidious one, is being energetically met by the thymol treatment, but the work of the medical authorities is rendered the more difficult by the ignorance and indifference of the natives in regard to sanitary precautions. German East Africa has remained remarkably free from outbreaks of plague, and the success with which the introduction of the disease by sea from India and South Africa has been prevented is undoubtedly due to the stringent quarantine measures which are adopted against the shipping of infected ports. Sleeping sickness constitutes a grave danger to the colony, and is regarded by the Government as so serious a menace that no effort or expense is being spared to combat the disease. Following upon the researches made by Professor Koch in Uganda, expeditions have been organised to Ujiji and Shirati, the centres of the infected districts, and a regular plan of campaign has been adopted against the scourge in the organisation of segregation camps, the clearing of vegetation from the shores of the lakes, and the destruction of crocodiles and other reptiles on which the infection-bearing fly (Glossina palpalis) thrives. Little doubt is felt that sleeping sickness was originally introduced into German East Africa from British and Congolese territory, first of all to the shores of Victoria Nyanza, notably at Shirati and Muanza, whence it gradually spread eastward and southward to Lake Tanganyika, where the presence of the dreaded Glossina palpalis has been detected as far south as the mouth of the river Magarassi. In consequence of this it is proposed to open three new stations on Lake Tanganyika. Much good is expected to result from the Anglo-German agreement signed on Oct. 27th, 1908, for the combating of the disease. Both Dar-es-Salaam and Tanga now possess commodious and well-equipped hospitals for Europeans, situated in the best positions available as regards the monsoons. They are staffed by Government medical officers and nursing sisters, the Sewa Haji Hospital in the former town having been founded by the munificence of an Indian in 1893. In other places on the coast and at interior stations the medical needs of Europeans and natives alike are cared for at the various mission stations. The Leinhardt sanatorium, ideally situated at Wugire in West Usambara, nearly 4000 feet above sea level, provides a place of rest and recuperation for invalid and convalescent Europeans at a reasonable charge. The town of Dar-es-Salaam is fully described in the report, which speaks most favourably of its situation and sanitary supervision.

CHLORODYNE.

OUR attention has been drawn to a statement that Collis Browne's chlorodyne contained appreciable traces of prussic acid. The proprietors deny that such is the case, and a recent chemical analysis made by ourselves of a sample purchased in the open market justifies this denial. We could find no trace either of hydrocyanic acid or of any cyanide, the separation and identification of which is a simple

matter, extreme delicacy of detection being also possible. It may be pointed out that the tinctura chloroformi et morphinæ composita of the Pharmacopœia contains hydrocyanic acid, as does also the not official liquor chloroformi compositus, but in the chlorodynum of the British Pharmacopœia codex hydrocyanic acid is omitted. According to analyses published in pharmaceutical works some years ago chlorodyne contained hydrocyanic acid, but Martindale (Extra Pharmacopœia, 13th edition, 1908) says: "We doubt whether hydrocyanic acid is now an ingredient," and according to our recent analysis the ingredient no longer appears. Chlorodyne comes, therefore, under Part 2 of the Schedule of the Pharmacy Act, 1868, and not under Part 1, which includes hydrocyanic acid.

GIVING A TRADE A BAD NAME.

His honour Judge Smyly, when hearing judgment summonses at the Shoreditch county court recently, seems to have been a little alarmed as well as puzzled by the wife of a debtor, who was understood to say that her husband carried on the trade of "a skull maker." On the learned county court judge inquiring further as to what he termed the "gruesome business," and particularly whether it kept the manufacturer busy, a point material in ascertaining his means to pay, he was reassured by the explanation that the manufacture was of "sculls for boats," at which he expressed relief.

BEE DISEASE.

THE Board of Agriculture and Fisheries desire to warn all bee-keepers that an outbreak of disease believed to be identical with the Isle of Wight bee disease has occurred in several hives in Buckinghamshire. This disease, which has destroyed almost all the bees in the island from which it takes its name, is due to a bacillus closely resembling the bacillus of plague and no remedy for it is known. It is of the utmost importance, therefore, that bee-keepers should take every precaution to prevent the disease spreading, and they are strongly advised to keep a careful watch for any signs of its appearance. A full description of the disease was published in the *Journal of the Board of Agriculture* for February, 1909, and bee-keepers who find symptoms of disease corresponding to the description there given should communicate with the Board of Agriculture and Fisheries, 4, Whitehall-place, London, S.W.

NON-ALCOHOLIC GALENICALS.

IN a leading article under the above heading in THE LANCET of June 19th, 1909, p. 1764, reference was made to the opportunity which the imposition of increased taxes on alcohol afforded of reducing to a minimum the use of alcoholic preparations of drugs without loss of therapeutic efficiency or of what is known as pharmaceutical elegance. Mr. W. Martindale of 10, New Cavendish-street, London, W., points out that a certain amount of discrimination should be used in employing glycerine as a substitute for alcohol, since all drugs are not suitable for glycerine extraction. When, for example, resinous drugs have to be extracted glycerine is not admissible, but if the active ingredients are soluble in water they are in most cases soluble in glycerine also. In regard to alkaloids, it was found desirable to employ glycerine acidulated with a small percentage of acetic acid. Under the title of "glycetracta" a number of quite elegant preparations are made on the lines indicated, and according to some specimens we have examined the results are distinctly satisfactory. Mr. Martindale points out that such preparations must contain at least 25 per cent. of glycerine to preserve them. The preparations are described in the Extra Pharmacopœia (thirteenth edition), and among those examined were belladonna, catechu, calumba, cinchona, colchicum, ergot, gentian, hyoscyamus, krameria, senna, taraxacum, all representing standardised preparations which are miscible with water (which is not the case with some of the alcohol preparations), palatable, and, of course, distinctly cheaper than the corresponding alcohol tinctures.

W. E. H.—The best text-book on Hygiene in German of the description mentioned is "Prausnitz, Grundzüge der Hygiene," published by Messrs. Lehmann at Munich at the price of M.9.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 1st, 1909.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
June 25	29·65	W.	0·83	66	56	52	52	54	Raining
,, 26	29·87	W.	0·33	106	63	50	49	51	Overcast
,, 27	29·89	S.W.	1·00	84	58	51	51	52	Raining
,, 28	29·98	S.W.	0·03	110	66	49	52	54	Cloudy
,, 29	29·86	W.	...	99	63	54	54	57	Overcast
,, 30	29·96	W.	0·19	92	62	53	53	55	Overcast
July 1	30·15	N.	...	91	59	48	49	52	Overcast

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

SATURDAY.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION (Meeting at Cambridge).

(At 3 P.M.) Demonstration in the Pharmacological Laboratory by Professor W. E. Dixon and others.

(At 6.30 P.M.) Dinner in the Hall of Downing College.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—8 P.M., Card Exhibit by Dr. F. W. Edridge-Green of Spectroscope for Testing Colour Perception. Mr. A. Lawson and Mr. M. Davidson: A Preliminary Note of the Treatment of Eye Disease by Radium. Presentation of the Nettleship Medal to Mr. Nettleship. The Annual Meeting of the Society will be held immediately after the Ordinary Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. C. Fox: Clinique (Skin). 5.15 P.M., Lecture:—Dr. P. Stewart: Paralysis Agitans.

TUESDAY.—4 P.M., Dr. H. Campbell: Clinique (Medical). 5.15 P.M., Lecture:—Mr. C. H. Leaf: Surgical Treatment of Cancer of the Rectum.

WEDNESDAY.—4 P.M., Mr. T. Walker: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. A. F. Tredgold: Feeble-minded Children.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. J. Collier: Acute Polyneuritis and Landry's Paralysis (illustrated by cases).

FRIDAY.—4 P.M., Mr. R. E. Bickerton: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Bidwell: Practical Surgery.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Pritchard: Clinical Pathology.

WEDNESDAY.—10 A.M., Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Harman: Diseases of the Eyes. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Medicine.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Mr. Edwards: Clinical.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Lecture:—Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Armour Clinical.

SATURDAY.—10 A.M., Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. Mr. Harman: Diseases of the Eyes. 12.15 P.M., Lecture:—Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson); X Rays. 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations (Mr. Carson). Clinics:—Surgical Out-patient (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M., Lecture:—Mr. H. Evans: The Cesspools of the Body—Procedures of Surgical Drainage.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. H. W. Carson); X Rays. 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations (Mr. W. Edmunds). Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie). 4.30 P.M., Lecture:—Mr. R. P. Brooks: Subconjunctival Injections in the Treatment of Eye Disease.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Sir Dyce Duckworth: Medicine. 3.15 P.M., Mr. Turner: Surgery. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. Carless: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 2.15 P.M., Special Lecture:—Prof. Hewlett: Artificial Immunization in Infection Diseases.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat. 2.30 P.M., Dr. G. Rankin: Headaches and their Treatment.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.
SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. J. Taylor: Treatment of Nervous Diseases.
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. G. Holmes: Familial Ataxia, Friedreich's Disease.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.
TUESDAY.—3.45 P.M., Lecture:—Dr. J. Atkinson: Nose.
FRIDAY.—3.45 P.M., Lecture:—Dr. D. McKenzie: External Ear.

WEST-END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, 73, Welbeck-street, W.
MONDAY.—3 P.M., Clinical Demonstration: Dr. H. Campbell.
TUESDAY.—5 P.M., Clinical Demonstration: Dr. J. Mackenzie.
WEDNESDAY.—3 P.M., Clinical Demonstration: Dr. F. Palmer.
THURSDAY.—3 P.M., Clinical Demonstration: Dr. T. D. Savill.
FRIDAY.—2 P.M., Clinical Demonstration: Dr. P. Stewart. 5.30 P.M., Clinical Demonstration: Dr. E. Macnamara.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (7th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (8th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (10th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

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